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ABSTRACT

The chapters and essays in this book are drawn from the 1988 edition of "Play as a Medium for Learning and Development." The first chapter, "The Challenge of Educational Play," by Bernard Spodek and Olivia N. Saracho, is followed by two essays: (1) "Play and the Origin of Species," (Michael J. Ellis); and (2) "The Struggle between Sacred Play and Festive Play," (Brian Sutton-Smith). The second chapter, "Methods of Studying Play," by Doris Bergen, is followed by three essays: (1) 'Some 'Good News' and Some 'Not So Good News' about Dramatic Play," (Kenneth H. Rubin); (2) "Imaginative Play and Human Development: Schemas, Scripts, and Possibilities," (Jerome L. Singer and Dorothy G. Singer); and (3) "Reality and Fantasy in Make-Believe Play," (Inge Bretherton). Chapter 3, "Stages of Play Development," by Doris Bergen, is followed by four essays: (1) "A Mental Image: A Question That Remains Open," (Constance Kamii); (2) "Moral Development in Play," (Rheta DeVries); (3) "Toddlers' Play and Sex Stereotyping," (Beverly I. Fagot); and (4) "Play and Gifted Children," (Annemarie Roeper). Chapter 4, "Using a Schema for Play and Learning," by Doris Bergen, is followed by three essays: (1) "Places of Beauty," (Anita Rui Olds); (2) "The Computer in the Play Environment," (Anne E. Porter); and (3) "Play, Technology, and the Authentic Self," (Doris Bergen). Individual chapters include suggestions for further reading, and the final section of the book contains 331 references. (LPP)

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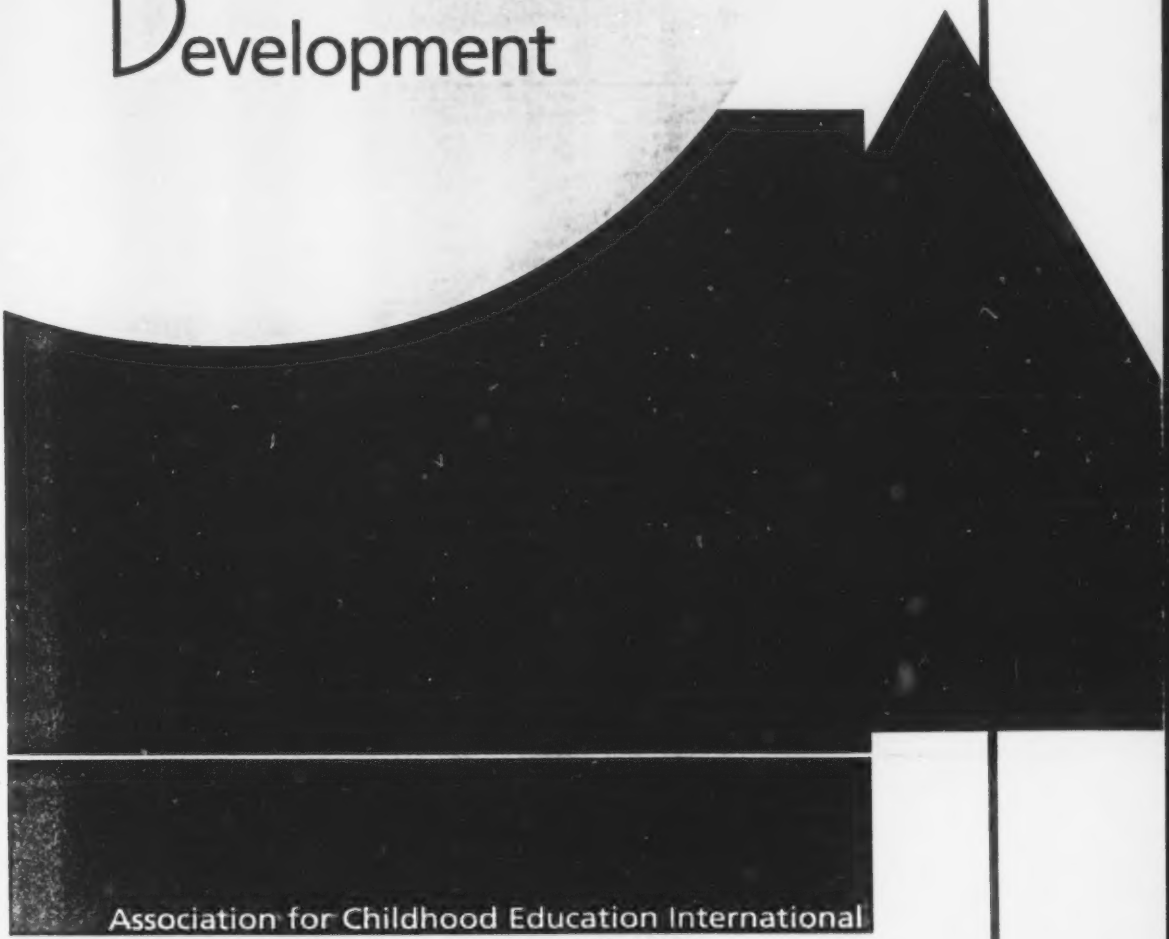

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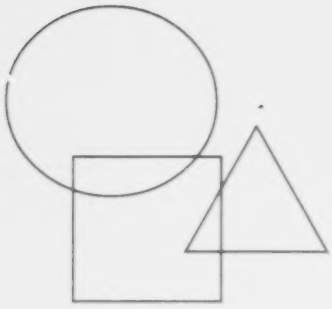


Introduction

The book from which this *Readings* edition is derived was published in 1988 and, although many other books on play were concurrently and subsequently printed, I routinely get requests for reprints of various sections of this book because early childhood educators have continued to judge them as useful for students in their higher education classes. *Readings from Play as a Medium for Learning and Development* is designed to provide a convenient way to gain access to the sections of the book that have proved to be most popular. The chapters and essays included here are the ones that early childhood educators most often request. Although this reprinted information does not include the very latest research on play, I think the ideas are still current enough to be useful to those who are studying play.

The Future of Play

As I sit on my screened porch this summer afternoon and review my years (almost 25!) of experience studying, thinking, and writing about play (and, of course, playing with ideas!), I optimistically look forward to the "play millennium!" In comparison to the year 1000, or even the year 1900, the year 2000 appears to be the gate into a world where the most playful humans will flourish as never before. The opportunities, and indeed the need, for playful thinking and action that incorporate imaginative, creative, and risk-taking ideas are more and more in evidence throughout the range of human occupations (e.g., technological, scientific, artistic, business).

Moreover, never before have human beings had as much time for engaging in play in their "non-work life." As technology takes over more and more of the mundane work that used to require hours of human energy and provides a plethora of wide-ranging information at our fingertips, the play time of adults is expanding exponentially. Although there has always been adult play (e.g., festivals, theater, games of chance), one has only to look at the "entertainment," "sports," "recreation," "hobbies," and "retirement" activities that exist today to see how the proportion of adult time spent in playful ways has expanded, as compared to that spent in work. Of course, this is not yet true all over the world, as the sweatshops where clothing and sports equipment are made demonstrate. Nevertheless, the long-term trend is definitely on the side of a change in the play/work balance throughout the human life span. For adults, therefore, both occupational play and recreational play are the future.

What does this future hold for children? Will they be encouraged to make the most of their playful natures? There are those who say that play, in this postmodern world, has become something that is more for adults than it is for children. Some authors point to indications that, at the present time, most children's lives are pressure-filled and structured with lessons and competitive sports rather than being filled with flexible time for play and they are being asked to take on adult-like responsibilities at a young age (e.g., Elkind, 1995). Adults of earlier generations and different cultural backgrounds can recall very powerful memories of their childhood play, which usually occurred in unstructured times in backyards, neighborhood streets, basements and other settings with minimal adult supervision and great adult tolerance (Bergen, Liu, & Liu, 1994). It will be especially ironic if children's time for play is reduced so much that they lose the ability to be self-directed and flexible players, because they are going to need the ultimate in play-based skills as adults in the centuries to come. It is essential that, as citizens of the next millennium, children must have expanded rather than reduced opportunities to develop their play potential and their ability to learn through playful means.

Play, Development, and Learning

Children's learning occurs in many places besides the classroom; even there, it can be best facilitated by playful approaches that draw upon individual interests and the creative, adaptive, and problem-solving functions of the brain. Educational practices for the new age must reflect a "play, development, and learning" model, which is in contrast to the "industrial" model of schooling that served the society of the 20th century. Educational practices that promote rigid transmission of a finite set of immutable knowledge are being challenged as never before in this information-rich age. The democratization of information access through technology and the invention of technological means of solving basic cognitive and physical problems is also resulting in a transformation in the activity of the brain. According to Sylwester (1995), the brain's frontal lobe has developed with excess thinking capacity because critical thinking and problem-solving mechanisms had to be

> sufficient for crisis conditions (just as furnaces must be able to function well on the coldest day of the year) . . . Since our survival doesn't require our problem-solving mechanisms to operate at capacity most of the time, we've invented social and cultural problems to keep them continually stimulated and alert. The arts, games and social organizations provide pleasant metaphoric settings that help to develop and maintain our brain's problem-solving mechanisms. (p. 53)

It will be especially ironic if children's time for play is reduced so much that they lose the ability to be self-directed and flexible players, because they are going to need the ultimate in play-based skills as adults in the centuries to come.

Because present-day improvements in human survival conditions (especially in developed countries)

has left the human brain with much excess capacity, there is a greater opportunity now for humans to use their brains to engage in creative, innovative, disequilibrial, exciting and enjoyable activity—that is, to indulge in playful ways of knowing. One way of explaining the growth in adult play is that humans are keeping their higher brain processes active by generating play-based problems to solve (e.g., chess, Dungeons and Dragons, scoring under par in golf, learning the language of the Klingons). Indeed, keeping our brains operating at full speed is one of the most important functions of play, both for adults and for children. The recent research on the brain development of young children provides another piece of evidence for the value of play (Shore, 1997). Much of this research, which shows the extensive development of the synaptic connectors (the "information gatherers and distributors" of the brain) during the first years of life, points to the importance of active and information-rich experiences for young children. Indeed, play can be thought of as the medium through which children's brains develop and learn.

Play as a Medium

The thesis of both my 1974 and my 1988 books was that play was a major means by which children's development and learning are initiated and through which development is achieved and learning is mastered. Thus, I stressed the concept of play as a "medium" for learning and development. This viewpoint continues to provide the framework for the *Readings* volume. My thesis goes as follows:

All human beings are active seekers of knowledge and play is an integral facet of this ongoing quest. The pedagogical value of play does not lie in its use as a way to teach children a specific set of skills through structured activities called "play." Rather, play is valuable for children primarily as a medium for development and learning. The word "medium" can be defined in a number of ways; a discussion of five definitions given in the newest Random House Dictionary (computer version) can help us see why play can be thought of as a medium through which learning and development are facilitated.

1. A medium is "one of the means or channels of general communication." Language provides adults with their prime channel of social communication. Until children have that language facility, play acts as a prime channel by which children's thoughts and feelings are communicated to others. Many of children's misconceptions and incomplete understandings are conveyed when adults observe children's play. Through observation of play, adults can also understand the complexity of children's thought processes and the intensity of their feelings.
2. A medium is "a material or technique with which an artist works." Adults use a variety of media for artistic, creative expression; play serves as a primary medium for the artistic expression of children. It acts as a technical medium for examining materials from many perspectives, enabling children to explore the range of possible uses of objects, different ways to deal with social situations, and even how their own bodies can best function. Children combine the medium of play with

drama, art, music, dance, and literature in their active pursuit of knowledge.

3. A medium is "an intervening agency, means, or instrument by which something is conveyed or accomplished." Play serves to enhance children's sense of efficacy because it assists them in translating their experience into internal meanings. The play medium provides them with a way to gain an internal sense of mastery of their environment and to gain competence that leads them to a state of self-efficacy. It is the means by which they accomplish their immediate goals and convey their deepest thoughts and feelings.
4. A medium is "an intervening substance, as air, through which a force acts or an effect is produced." Observers of children are often aware of how enveloped (as in air) children are in their play. At play, children show an intensity of concentration and involvement that provides the force of their actions. The medium of play can temporarily soften the realities of the world, provide a filter through which unpleasant experiences can be faced, and allow children to try out actions within a risk-free world of their own.
5. A medium is "the element that is the natural habitat of an organism." Play is the natural habitat of children. It can be thought of as a condition in which a broad range of learning may flourish. It supports all of the developmental functions required in the natural habitat, such as the elaborative functioning of children's cognitive, social, emotional, and physical structures. The natural habitat is the one in which every organism best develops; for children, that natural habitat is play.

Play as Curriculum

Play has been undervalued as a curricular tool by educators and by parents primarily because the goals of learning, especially school learning, have often been defined narrowly in terms of mastering a set of basic academic skills. This emphasis on basic academic skill learning is in a state of resurgence at the present time, as exemplified by the introduction of basic proficiency tests at many age levels. While it is certainly important to have all citizens be able to perform basic academic skills, the lock-step, work-oriented approach to learning these skills will not be the appropriate education approach in the next century. Toffler (1980) made a prediction almost 20 years ago that the technological advances being made would require future citizens to have adaptive, creative, and complex cognitive and communication abilities. These predictions are even now being realized in many fields of endeavor. He also predicted that education would become more individualized, dispersed and interactive; that is, "schooling" would take very different forms. Play advocates believe that the educational goals for citizens of the information age societies of the future will be better promoted by a rich diet of play opportunities for both children and adults. Indeed, many of the recently developed curriculum approaches in math, science, and literacy acknowledge the need for children to play with ideas and construct their own knowledge of those content fields through their playful activity. Future educators will need a deep understanding of the value of play and the ability to articulate how play must be a component of curriculum, especially if mastery of academic and social skills is desired.

Purpose of This *Readings* Edition

While the portions of *Play as a Medium for Learning and Development* that are included in this book of *Readings* will not answer many of the questions about play that must be faced in the next century and beyond, it is my hope that they will continue to provide thought-provoking discussions, useful rationales, suggestions for educational practice, and interesting possibilities to be further explored. I believe that the future of play for children and adults will partially depend on those who study the varied dimensions of play and who are articulate in presenting such information to people who, despite the evidence around them, still see this essential element of human life as "just" play.

References

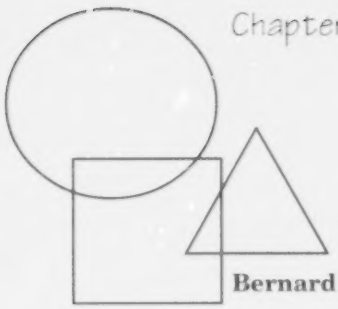
Bergen, D., Liu, W., & Liu, G. (1994, April). *Chinese and American college students' memories of childhood play: A comparison.* Paper presented at the annual conference of The Association for the Study of Play (TASP), Atlanta, GA.

Elkind, D. (1995). School and family in the postmodern world. *Phi Delta Kappan, 77*(1), 8-14.

Shore, R. (1997). Rethinking the brain: New insights into early development. New York: Families and Work Institute.

Sylwester, R. (1995). *A celebration of neurons: An educator's guide to the human brain.* Alexandria, VA: Association for Supervision and Curriculum Development.

Toffler, A. (1980). *The third wave.* New York: William Morrow.



Chapter 1

The Challenge of Educational Play

Bernard Spodek and Olivia N. Saracho

One of the interesting characteristics of early childhood educators is their need to justify the use of play in programs for children, as well as their need to justify themselves as professionals whose prime concern is children's play. It is difficult to justify a serious concern with play in a culture that is still rooted in Puritanism. Too often, the basic concern with play is denied by suggesting that play is really something else, such as "play is the work of the child!" By calling play work, it becomes serious and scholars can be serious about it and maintain their professional self-esteem.

The problem with such statements is that they obscure real differences and deny valid concerns. A concern with play should not be hidden, but rather should be seriously considered. Play is legitimate; it needs to be accepted in its own right for it to be used wisely.

The first activity-oriented program in the history of early childhood education was begun about 150 years ago when Friedrich Froebel created the kindergarten in Germany. Froebel observed children and abstracted the essential ingredients of their activities, creating an educational program from this. He called the educational materials he designed "gifts," and the educational activities "occupations." The gifts were sets of objects, such as balls, wooden blocks, and other materials. The occupations included paper weaving, paper folding and cutting, and many of the arts-and-crafts activities that are offered to children in kindergarten today. These materials symbolized the key ideas that Froebel viewed as essential to an understanding of the unity of the world, and of the individual, God, and nature. Even though Froebel (1887) uses the word "freedom" extensively in his writing, the activities he designed were highly prescriptive. Because the children had to do what they were told with the materials, the activities cannot really be termed play.

In Italy, more than a half-century later, Maria Montessori developed a very different program of early childhood education. She also observed children's play and abstracted activities from her observations. Her activity-based program became known as the Montessori Method (Montessori, 1965, 1973). Even though children were involved in manipulating materials, the prescribed way they were required to use these materials precluded play.

In both these approaches, observations of play were the source of program ideas, but the observations were interpreted through different theories, and the resulting

programs included activity, but not play.

Beginning with the development of the nursery school movement in England in the early 1900s and the reform kindergarten movement in the United States at about the same time, play began to be accepted as a legitimate educational activity. These educators observed children and realized that what children do in play is real, is vital, and has within it the potential for learning. They saw how children use play to test ideas, abstract information, and operate on this information. The natural play activities of children were valued, supported, and nurtured in these early childhood programs. Housekeeping areas, blocks, and outdoor play activities were provided for children. Recent research has added to knowledge about children's play and has permitted educators and researchers to elaborate upon the possibilities of play activities that promote learning.

The puzzle of play has been one that many theorists have attempted to solve in the last 150 years. They have grappled with problems in defining play, and they have disagreed with one another about its definition. They have provided many explanations for why play occurs and how to tell when it will occur. They have also suggested how it functions in the processes of education and development and have argued about whether adult interventions in children's play help or hurt these processes.

Practitioners who work in educational settings with young children have also been concerned with the topic of play. They have proposed numerous educational approaches that use play (as they define it) to promote children's development. They, too, have debated the appropriateness of specific play interventions that have been suggested.

This chapter sets the stage for further discussion of many of these theoretical and practical issues. It gives an overview of the definitions of play that have been offered in the past and that are currently suggested, reviews rationales provided for children's play, and discusses the educational functions of play in the lives of children. A brief discussion of methods for promoting play as a medium for learning and development in early childhood education concludes the chapter.

Definitions of Play

Play is difficult to define accurately. There are 59 definitions of play in *Webster's New World Dictionary* (1972). The word "play" is used in many ways in everyday life. For instance, a play is a dramatic performance, and one can play a musical instrument; this conveys a sense of performance. Kidding around is also considered play. A pun is a play on words. A car is taken into the service station to be repaired because the steering wheel had too much play in it. Because it is used in so many ways, attempting to define the word "play" in everyday use presents a challenge.

When play began to be accepted in education, a variety of definitions were developed. Educators and philosophers developed a range of definitions of play, which included the following (Mitchell & Mason, 1948):

- Seashore: Free self-expression for the pleasure of expression.
- Froebel: The natural unfolding of the germinal leaves of childhood.

- Hall: The motor habits and spirit of the past persisting in the present.
- Groos: Instinctive practice, without serious intent, of activities that will later be essential to life.
- Dewey: Activities not consciously performed for the sake of any result beyond themselves.
- Schiller: The aimless expenditure of exuberant energy.
- Spenser: Superfluous actions taking place instinctively in the absence of real actions. . . . Activity performed for the immediate gratification derived without regard for ulterior benefits.
- Lazarus: Activity in itself free, aimless, amusing, or diverting.
- Shand: A type of play directed at the maintenance of joy.
- Dulles: An instinctive form of self-expression and emotional escape valve.
- Curti: Highly motivated activity that, as free from conflict, is usually, though not always, pleasurable. (pp. 103-104)

Each definition suggests different consequences for understanding and interpreting play. Often, play is defined as distinct from work. An activity is play if it is not work. However, the same activity can be identified as work under some conditions and as play under other conditions. When children play football on Saturday morning, it is play. When Joe Montana participated in a football game on Sunday afternoons, there was little that was playful about it. It is very serious business. Similarly, a person hired to build a cabinet is working; someone creating a cabinet in his or her home workshop would be playing, even though it would be serious cabinet-making.

It is not the activity itself, but rather the reasons for the activity that seem to determine whether it is play or work. The criteria for play are not observable. Whether an activity is play or not play is inferred from the sources of satisfaction in the activity. Activity done for its own sake is seen as play; activity done for external reward, salary, or pay is seen as work.

The degree of seriousness of the activity can also be used as a criterion for distinguishing work from play. Using this criterion, anything that is frivolous can be considered play. But when children engage in dramatic play activity, it is often hard to find anything frivolous about it. Children's play is often as serious as anything that can be observed.

In the absence of a consensus regarding a definition of play, many researchers continue to investigate play (Schwartzman, 1978). They often suggest using paradigm cases of the phenomenon, presenting examples and counter examples while postponing dealing with definitional problems (Matthews & Matthews, 1982). The problem of defining play cannot be put off indefinitely, however, because definitional problems seriously hamper efforts to distinguish among various kinds of play.

Researchers on play vary in academic backgrounds; therefore, studies on play come from many disciplines, including the natural and biological sciences, social sciences, and humanities. Efforts to define play range from presenting structural definitions (e.g., delineation of typical gestures or movements) to offering functional or causal definitions (e.g., delineation of enjoyable activities without considering the purposes of the activities).

Play has been considered to affect almost every human achievement and to be the basic foundation of human culture (Huizinga, 1950). Such assumptions have probably led some to assume that "the category 'playful activity' is so loose that it is almost useless for modern psychology" (Schlosberg, 1947, p. 231) or that play refers to "an artificial category" and a "stimulus seeking behaviour to which we cannot ascribe a preponent motive" (Ellis, 1973, p. 109).

Smith and Vollstedt (1985) suggest identifying play through analyzing the many characteristics of an activity that might be considered play, instead of using a single attribute as the criterion that determines whether a behavior is play. Using additional criteria may provide the best assurance that play behavior will be classified as such (Sokal, 1974). Recent literature has proposed several criteria of play (e.g., Lieberman, 1965; Neumann, 1971; Rubin, Fein, & Vandenberg, 1983; Spodek, Saracho, & Davis, 1987). However, there is little empirical support for selecting one set of characteristics over another to classify an episode as play. For example, the criteria suggested by Krasnor and Pepler (1980)—flexibility, positive affect, intrinsic motivation, and nonliterality—have been questioned by Sutton-Smith and Kelly-Byrne (1984). The latter contend that some forms of play are not voluntary or flexible and that play may sometimes be described by negative affect.

In reviewing the literature on play, Rubin et al. (1983) identify six criteria that have been used to define play as a dispositional factor: (a) intrinsic motivation, (b) orientation toward means rather than ends, (c) internal rather than external locus of control, (d) noninstrumental actions rather than instrumental actions, (e) freedom from externally imposed rules, and (f) active engagement. They indicate that play has also been defined in terms of the behaviors that are observed and the contexts in which these behaviors are elicited.

Neumann (1971) suggests that an activity can be determined to be play according to three criteria that lie on a continuum from work to play. She indicated that many activities fall somewhere in the middle of the continuum. The three criteria are:

1. *Control*. There is a difference between internal control and external control of activities. To the extent that control is internal, an activity is play. To the extent that control is external, it is work. In most cases, the control is neither totally internal nor totally external. The only time people can totally control their own play activities is when they are playing alone. As soon as more than one player is involved, control is shared, and this involves a move from internal to external control for each individual.
2. *Reality*. There is a differentiation between internal reality and external reality. One of the criteria of play is the ability of the player to suspend reality, to act "as if," to pretend, to make believe, to suppress the impact of external reality, to let the internal reality take over. To the extent that an activity is tied to the real world, it stops being play. To the extent that one can act in an "as if" way, one is acting in a playful manner. Most play, however, maintains some tie with external reality.
3. *Motivation*. To the extent that an activity is internally motivated, it is play. As

soon as the motivation is external it stops being play. Seldom is the motivation entirely internal or entirely external.

Lieberman (1965) suggests yet another set of criteria for what she considers to be "playfulness." She believes that a quality of playfulness is part of all activities. Playfulness, she asserts, is related to divergent thinking: The more creative thinker is also the more playful thinker. Lieberman's five criteria for playfulness are physical, social, and cognitive spontaneity; manifest joy; and sense of humor.

Motives for engaging in an activity provide clues to determine whether it is play. The goals, materials, rules, and other elements used in play activity suggest that play can be identified according to the following criteria (Spodek et al., 1987):

1. Play is personally motivated by the satisfaction embedded in the activity and not governed either by basic needs and drives, or by social demands.
2. Players are concerned with activities more than with goals. Goals are self-imposed and the behavior of the players is spontaneous.
3. Play occurs with familiar objects, or following the exploration of unfamiliar objects. Children supply their own meanings to play activities and control the activity themselves.
4. Play activities can be nonliteral.
5. Play is free from rules imposed from the outside and the rules that do exist can be modified by the players.
6. Play requires the active engagement of the players.

Smith and Vollstedt (1985) attempted to examine empirically which criteria most individuals use to characterize an activity as play. For their study, they selected intrinsic motivation, nonliterality, positive affect, flexibility, and means/ends distinctions. Their results showed that observers used three of these criteria to judge an activity as play. Most observers did not evaluate on the basis of intrinsic motivation. Smith and Vollstedt conclude that a combination of nonliterality, positive affect, and flexibility is most useful for making a judgment of play because more than half of the episodes rated by most observers as being playful had these characteristics. This conclusion implies that observers see play as enjoyable, flexible, and, most typically, as "pretend."

Smith and Vollstedt suggest that these criteria be accepted as forming a tentative definition of play, although they indicate that criteria other than those studied may also be related to play. Specifying criteria can help identify play behavior but can also lead to rejection of some important play episodes. If research studies indicate that play is important for development and/or education, then researchers and practitioners need to have a basis for identifying play behavior. Acceptable definitions must be related to developmental theories rather than only conforming to ordinary usage.

Definitions and criteria may create problems in distinguishing work from play, because they are used by research and practitioners in an all-or-none fashion. Activities may be defined as being either work or play and these may be considered mutually

exclusive. That is, if something is work, it cannot be play and vice versa. Schwartzman (1978) differentiates play from work as follows:

> Play is not work; play is not real; play is not serious; play is not productive; and so forth. . . . [Yet] work can be playful while sometimes play can be experienced as work; and likewise, players create worlds that are often more real, serious and productive than so-called real life. (pp. 4-5)

As this scholar suggests, distinguishing work from play is not an easy task. Play is a phenomenon that has been difficult to define, explain, understand, and observe in all of its different forms. Children, adults, and nonhuman animals engage in play; therefore, it continues to be a phenomenon that must be considered in the individuals' development and education.

Rationale for Children's Play

The work of Neumann (1971), Rubin et al. (1983), Spodek et al. (1987), and others provides useful criteria that assist in defining play more clearly and communicating more accurately about play. Unfortunately, clearer criteria and definitions do not help in understanding why people play and especially why children play, a challenge that psychologists have encountered for literally hundreds of years.

Gilmore (1971) identified the various theories of play, many of which deal with the reasons why people play. He categorized the theories into classical and dynamic theories of play. The classical theories, which try to explain why people play, are older. The dynamic theories accept the fact that people do play; these theories attempt to explain the processes of play. The classical theories of play include the surplus energy theory, the relaxation theory, the pre-exercise theory, and the recapitulation theory. Many of these theories have been around for a long time, and educators continue to use them in their commonsense discourse about play.

The surplus energy theory postulates that there is a quantity of energy available to the organism and a tendency for the organism to expend that energy either in goal-directed activity (work) or in goalless activity (play). Play occurs any time the organism has more energy available than it needs to expend for work. Within this theory, the energy that people have is expended somehow, and if it is not expended at work, it is expended at play. The content of play activity is not important; one form of play can easily be substituted for another.

There is commonsense support for the surplus energy theory. When children are constrained, energy seems to build up until they are ready to explode, and all manner of activity seems to burst forth. But this theory cannot account for all the many situations in which play occurs.

According to the relaxation theory, play is used to replenish expended energy. It is a recreational form that allows people to gather additional energy to be used for work. The relaxation theory is more difficult to ascribe to young children's play than is the surplus energy theory because young children do not typically engage in work activities from which they must relax. In fact, there is no "real" work for children in society.

The pre-exercise theory suggests that play is instinctive behavior. Children instinctively involve themselves in play activities that are, in essence, forms of a more mature behavior they will later have to assume. The content of children's play is, therefore, determined by the content of mature, future adult activity. Play is seen as a preparation for future work. For example, historically, the play of little girls with dolls has been viewed as preparation for an adult mother role.

Again, there is commonsense support for this theory. In preliterate societies, for example, male children run and shoot with bows and arrows, which parallels the activity of adult male hunters. The play of the boys could be explained as preparation for the male adult world. However, in present-day society few adult roles parallel the play of young children. Indeed, the fact that many present-day vocational roles were not even conceived of during childhood would raise serious questions about the validity of this theory.

The recapitulation theory suggests that rather than anticipating activities that will be essential in later life, play allows the individual to recapitulate the activities of earlier stages in the cultural development of the race. By allowing individuals to rid themselves of primitive and unnecessary instinctual skills, play prepares them for the elaborate sophisticated activities of the contemporary world. The play of children more closely resembles the activities of primitive people than those of modern adults, according to this theory.

These four classical theories, each of which attempts to explain the reason for the existence of play in human activities, seem to be composed of opposing pairs. The surplus energy theory provides an explanation of play that is contradicted by the relaxation theory, for one activity cannot provide both a means for sloughing off excess energy and a means for creating new energy. Similarly, while the pre-exercise theory explains play in terms of preparation for the future, the recapitulation theory sees the roots of child's play in the past, again a contradiction. None of the classical theories of play provides an adequate base for explaining the causes of play in all situations, nor do they adequately explain the existence of any content or thematic materials in the play of children.

Gilmore (1971) also identified two dynamic theories of play, one derived from psychoanalytic theory and the other from Piagetian theory. Psychoanalytic theory considers play a cathartic activity that allows children to express feelings they cannot handle rationally and thus master difficult situations. They can play out personally painful occurrences and, by mastering pain in fantasy play, come to grips with their pain in reality. Such activity also allows children to cope with the affective elements of more positive life situations.

Murphy (1962) describes the use of play activities as a means for coping with the problems of living, such as starting nursery school or going to the hospital. Other difficult experiences (such as having a new baby within the family, having a fight with a friend, or even going through a harrowing Halloween experience) can be played out until children master them, cope with them, and internalize whatever has been learned. They can then move on to deal with other problems.

The psychoanalytic theory of play has had a major influence on early childhood education during the past half-century. The role of the preschool teacher was seen as that

of a stage setter who did not interfere with the play activities of children. Play activities were to serve as catharsis, thus allowing children to avoid fixation and adult neurotic states. While children played out their problems, the teacher recorded copious notes in order to understand—but not interfere with—the children's behavior. The role of the preschool teacher was very close to that of a child therapist.

More recently, the works of Piaget (1962) have been used to understand play dynamically. He viewed the development of human intellect as involving two related processes: assimilation and accommodation. In the process of assimilation, individuals abstract information from the outside world and fit that information into the organizing schemes representing what they already know. They also modify these organizing schemes when they do not fit adequately with their developing knowledge. This latter process is called accommodation.

Fein and Schwartz (1982) refer to assimilation as the way children impose their own way of thinking on the world. Children apply their previously acquired action patterns to solve current problems. Accommodation allows children to adapt their own internal organization to meet the demands of the world; for example, adjusting their behavior in order to solve a problem.

Play, according to Piaget (1962), is a way of abstracting elements from the outside world and manipulating them so that they fit the person's present organizational scheme. As such, play serves a vital function in a child's developing intellect and continues to some extent in adult intellectual behavior. Theory development, for example, is a form of play. The theorist must suspend reality and deal with hypothetical situations, assimilating and accommodating in the process.

Piaget defined three distinct stages in the development of play. The first is the sensorimotor stage of infancy, which is based upon reflexive patterns of physical behaviors. The second is a level of symbolic play, the stage of dramatic or pretend play that is characteristic of most preschool and kindergarten children. In the third stage, playing involves games that have rules; this play is typical of older children. As children mature through the early childhood period and enter the primary grades, they become more oriented toward play.

Dramatic or symbolic play can be considered a form of representation. Once children are able to represent the outside world, they can manipulate the elements within it, using the processes of assimilation and accommodation. When children reach the stage of representation, play becomes an intellectual activity.

Beginning in the second stage—symbolic play—assimilation tends to predominate over accommodation, which permits children to modify reality in their own way without the constraints imposed by objective reality. In the first stage—sensorimotor play—accommodation is more pronounced (Saracho, 1986).

The joy of symbolic play is derived from children's ability to manipulate and change meanings (Piaget, 1962). Children develop a variety of action patterns without a specific purpose. They engage in play as a form of enjoyment, at the same time adapting to difficult situations and mastering new concepts, skills, and feelings. Thus, play provides a unique challenge that children create for themselves, and offers opportunities to develop.

Ellis (1973) adds another dimension to the theory of play. He characterizes as modern theories of play those that view play as a function of competence motivation, and those that view play as arousal-seeking. Traditionally, psychological theories have conceived of the natural human state as passive; such theories need to account for activity. However, White's (1959) theory of competence motivation suggests that people receive satisfaction from developing competency, regardless of whether external rewards are gained in the process. Play is one means for developing competency because it enables children to act on their environment, becoming more effective in their actions and thus receiving personal satisfaction.

Arousal-seeking theory suggests that human beings normally need to be continually involved in information-processing activities. The absence of stimuli in a person's environment will cause discomfort, leading the individual to increase the amount of perceptual information available, either by seeking it externally, or by creating it internally. Too much stimulation will cause individuals to "turn off" their environments by attending less. Play is a vehicle through which children mediate the amount of stimulation available to them in order to achieve an optimal arousal level.

Arousal-seeking theory explains children's tendency to create interesting and exciting environments through play, and Piagetian theory explains the ways in which children act upon these stimuli through play to achieve knowledge. Together, these theories provide a rationale for the use of play as an educational tool.

Educational Functions of Play

The preceding theories and definitions suggest that play serves an important function in the education and development of young children. Play helps them learn about their world, express their ideas and feelings, and develop social relationships with their peers.

Play is initiated as early as infancy, with the infant's sensorimotor and social experiences in the crib; it extends to adulthood, with games characterized by sophisticated rule structures. In particular, children's play experiences during their first 6 years assume an important role in their development of knowledge. Play helps them to gather the information needed to create new ideas, compare and contrast this information with their old knowledge, and then reject, confirm, expand, or modify their ideas accordingly.

Early childhood programs involve children as active learners by providing them with play experiences that enable them to develop and accumulate their own knowledge. The educational functions of play relate to areas of cognitive, creative, language, social, and physical development (Saracho, 1986).

- ***Cognitive play***

In cognitive play, children create objects and roles. Although they may use an object to stand for something else, they are aware of the original identity and purpose of the object.

Young children develop an awareness of both the imaginary use and the real use of an object or role. Such awareness is best learned in symbolic play, in which children are able to use objects and roles in imaginary and realistic ways. Although they do switch back and forth from imaginary to realistic play, it is difficult to observe this reversibility in

children's play.

When teachers can identify the play factors that relate to children's understandings, they can design environments that are more likely to encourage play in support of children's cognitive growth. Lunzer (1959) believes that the degree of organization found in children's play determines their play maturity, which in turn is related to their intelligence. Rubin and Maioni (1975) agree that the least mature level of play is unrelated to the children's ability to classify and to understand other persons' points of view. Children express their point of view when they take on various roles in pretend play, which often occurs in the housekeeping and block areas (Christie, 1980, 1982). In these roles they interact with other children and process a range of information, including their peers' points of view. This interaction can create incongruent responses and the differences that emerge must be resolved; in the process of working out these differences, children develop a more mature level of logical thinking.

- ***Creative play***

Creativity is the process through which imagination is given full rein; it is inventing and not imitating. Creative individuals disregard the common to produce the novel. According to Wallach and Kogan (1965), creativity develops a sufficiently unique content and integrates a playful and permissive attitude. Play and creativity, which, in their view, share the same basic structures, are therefore integrated.

Creative children are usually physically, cognitively, and socially spontaneous, as well as humorous and joyful (Lieberman, 1965). Three- and four-year-old children develop their creativity in play situations that require them to use their imagination (Singer, 1973). Play materials should elicit children's novel reactions to the objects (Dansky & Silverman, 1973) used in fantasy play.

Pretense/fantasy play enhances the development of children's cognitive and social skills (Rubin, 1980). For example, they use cognitive and social skills when they play "Pretend You Are Sick" (Garvey, 1974). Children who engage in fantasy play situations must use the cognitive skills that are intrinsic to pretense and that facilitate the perspective-taking involved in such play. Since pretense is usually based on children's daily lives and the day-to-day problems they confront, it supports young children's perspective-taking (Matthews, Beebe, & Bopp, 1980). The association of play situations to real-life situations varies among children. Their play activities range from those that approximate the immediate day-to-day situation, such as playing house or games, to activities that are remote from real-life situations, such as playing pirates, cops and robbers, cowboys, or cartoon characters. The total environment can be employed and a wide array of problems can be explored.

- ***Language play***

Language ability is one characteristic that differentiates humans from nonhumans. Young children communicate through the symbolic use of objects (e.g., they use a doll to represent a baby or use a piece of paper to represent a blanket) and words (e.g., they substitute sounds for objects). Both language and pretend play are used to represent

reality and convey meaning.

At first, children use objects to transmit thoughts; later, they play several roles to differentiate meaning from real objects (Vygotsky, 1962). During a play event, young children often employ speech play in exploring and manipulating the many components in their language, shuttling between actions and verbal descriptions of actions. Speech play fosters the development of metalinguistic awareness, which generates literacy as young children become cognizant of language rules.

Children experiment with words and manipulate their use, meaning, and grammar. They do not necessarily emphasize the meaning or value of words; rather, they experiment with rhythm, sound, and form (Johnson, 1928). They manipulate the phonological, syntactic, semantic, and pragmatic elements of language when they participate in speech play (Pellegrini, 1981). Children may use double meanings in speech play as they explore the consequences of changing the elements in words (Chukovsky, 1963). Certain elements of speech play, such as linguistically transforming roles and props, can help young children reconstruct situations in the appropriate sequence (Rubin, 1980; Sachs, 1980).

In thematic-fantasy play, young children have to verbally encode play role transformations and object transformations (Pellegrini, 1982b). Sachs (1980) questions this transformation process, because such a transformation is assisted by the use of roles and props. Roles and props can become a crutch in children's communication, but they can also serve to convey new understandings of concepts. Young children need to interact with others through language, such as discussing events in the past, in order to develop narrative language performance. Play and language foster children's development of flexible and expressive tones, as well as their perception of the rules underlying the use of voice or conversation patterns of whatever role they have assumed.

- ***Social play***

The socialization process requires children to learn to get along with others. In social play, they learn a wide range of verbal and nonverbal communication skills for dealing with their peers' feelings and attitudes. When children play with their peers, they discover points of view that differ from their own. They must either assimilate others' points of view and revise those perspectives to fit with their own, or adapt to different perspectives by accepting as many different points of view as possible and considering the social atmosphere (Rubin & Hayvren, 1981). In social play young children learn to become responsive to their peers' feelings, to be patient, to wait for their turn, to be cooperative, to share materials and experiences, and to obtain instant satisfaction when others value (i.e., like) them. In sharing and cooperating they also learn to use their own resources and those of others. Thus, peer play affects young children's social and cognitive development.

- ***Manipulative play***

Play materials can stimulate young children to participate in a variety of play situations. Play materials that appeal to young children can promote both nonrepresentational

(manipulative) and representational (pretend) play. Toys are considered the tools of play as they serve particular purposes in the development of the child. The development of play is gradual and continuous. Children employ play materials based on their age (Kawin, 1934; Westby, 1980). DeLoache, Sugarman, and Brown (1985) found that during manipulative play, 1 1/2- and 3 1/2-year-old children attempted to arrange a set of five nesting cups by size with little or no prompting. In similar studies (e.g., Greenfield, Nelson, & Saltzman, 1972; Sugarman, 1983) young children employed increasingly complex methods (i.e., composition procedures) to combine the cups. DeLoache et al. (1985) documented the existence of a developmental sequence in young children's strategies for correcting their errors in manipulating a set of nesting cups. The increasing scope and flexibility of the strategies observed have parallels in other realms of cognitive development.

Children's use of toys depends on their age. Therefore, age should be considered in selecting toys. The preschool setting, for example, typically contains categories of toys that are appropriate for young children, including miniature sets of toys that represent objects (e.g., dolls, doll furniture, wagons, engines) characteristic of life around children. These toys (a) facilitate children's role taking or dramatizations of adults' serious and meaningful experiences; (b) provide young children with knowledge, meaning, standards, and skills of their world; and (c) guide children to understand life, to play different roles, and to perceive others' feelings. The value of play materials depends on the extent to which they help young children learn specific skills or concepts.

Promoting Educational Play in Early Childhood

When young children play, they learn to understand the world around them. Observing children's play can help teachers to understand children's perceptions of their world and can offer teachers ideas about how to facilitate learning. Teachers must become facilitators of learning by becoming supportive rather than directive with their teaching.

Many teachers discourage young children's play because they perceive supervising play as babysitting. They may belittle children's imaginative and playful reactions in solving problems and may view playful social interactions with peers as misbehaving. If teachers believe that children need to learn complex concepts to be able to live successfully in modern society, then they must understand that young children have to use a variety of play experiences to assimilate and accommodate knowledge.

Teachers must also become aware of the developmental and learning outcomes of a play curriculum. A well-designed curriculum can allow teachers to help young children learn social roles and understand the adult world. In designing a play curriculum for young children, educators need to know about using play as an educational medium.

Almost all early childhood curricula include play. To be most effective, teachers must (a) offer a supportive environment with sufficient play areas, materials, and equipment; (b) foster positive social interactions; and (c) extend (i.e., make more productive) children's play. It is essential for teachers to understand the uses of particular types of play that are appropriate for young children. Spodek, Saracho, and Davis (1987) suggest that teachers should be active in initiating and extending children's play.

• ***Initiating children's play***

Play activities are often initiated simply by making play materials available to children. These materials should be attractive, provide reasonable play opportunities, and offer some novelty. Involving children in a short planning period before playtime can help them anticipate what they can do in their play period; further, such a planning session provides an opportunity to introduce new pieces of equipment or new toys. The purposes, uses, and limitations of the materials can also be discussed during the planning period.

Variety and novelty arouse children's interest in play activities. Sometimes novelty can be achieved by presenting existing materials in new forms. Teachers can rearrange the block area, display some new signs in the dramatic play area, or introduce new materials to transform an old activity into an attractive new activity.

A new play activity needs to stimulate children's imagination. Enriching their store of information will often do this. Teachers can take children for a walk through the neighborhood, read them a book on a specific play topic, or show a film or filmstrip.

• ***Extending children's play***

Teachers need to guide young children's play, extending it or helping it become more productive. At times teachers may find it necessary to participate with children in their play. However, teachers must encourage children to become independent, intervening as little as possible in order not to structure the play too much. They must be careful not to make themselves the focus of attention or the major source of play ideas since this will discourage children's play initiatives. Careless intervention can keep the activity from becoming a positive, productive play experience. Teachers must evaluate the consequences of their verbal and physical actions; they have to be sensitive to the play situation. If they go too far, they can pull back without causing too much discomfort; but they should not abstain completely from intervention.

Teachers may extend children's play by adding or deleting materials from the play area. If children play supermarket, for example, the teacher may make available a range of props that will enable children to assume different roles: a doll carriage, a wagon, or other wheeled toy to serve as a supermarket cart; boxes and empty food containers to serve as merchandise; and tables to serve as shelves. Signs can be written to label the different foods as well as the prices. A toy cash register and some play money can be added later. The teacher can ask the children what they need, suggest materials, or display some things from which the children might select what they need (Spodek, Saracho, & Davis, 1987).

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Teachers can also extend children's play by suggesting new roles. Questions like "Who is doing the shopping?" or "Who is the supermarket clerk?" suggest new roles. Or the teacher may join the play activity briefly and assume the role of shopper,

purchasing items and raising questions about prices. Children can thus become aware of the variety of roles that can be taken in playing supermarket.

When children are blocked in their play, the teacher might take them on a field trip to a supermarket. A few purchases can help children learn the shopping process and stimulate their imagination for future play periods. Children need to be encouraged to observe the way the store is arranged. The teacher might take children to the different areas in the supermarket, such as the storage area, butcher area, bakery, or other areas, which the children can then relate to their play situation in the classroom.

Evaluating Play Intervention Strategies

Because the basic goal of education is to help young people become something different than they might become if left alone, children are enrolled in artificial, contrived situations called "schools," where educators intervene in their lives to modify their development. This intervention is called "education." Teachers intervene in children's behavior and development, as do parents and even nondirective therapists. Sometimes these interventions are explicit, sometimes they are implicit; sometimes they are direct, and sometimes indirect. But no matter how people intervene, they ought to do it consciously. If intervention is conscious, it can be done carefully, it can be done well, and it can be evaluated and improved upon.

The question is, can intervention (i.e., education) and play take place at the same time? Neumann (1971) suggests that teachers must judge the extent to which the child (a) retains a degree of control over the play situation, (b) determines its degree of reality, and (c) provides motivation for the activity, that activity is play. In the educational environment, the teacher—to some degree—has control, influences the child's motivation, and imposes a measure of reality on the play of children. The activity is no longer play when the intervention goes too far.

Using Neumann's criteria, Ellis (1973) suggests asking (a) whether the child is seeking external or experiential rewards, (b) whether the child's behavior is controlled by outsiders or by the child, (c) whether the child is forced to recognize the constraints of reality or is permitted to suspend those constraints, (d) whether the setting imposes consequences on the child's behavior or choices are left to the child, and (e) whether the setting imposes connections between events and consequences or relaxes such connections.

These questions determine the extent to which children can be characterized as working or playing. While no setting will be arranged so that children are totally free from external constraints, unnecessary constraints can be removed to increase the probability that children will play.

White and Carew-Watts (1973) reported a study of the family influences that seem to help young children become more competent. Based on this study, White and his associates presented some of their best guesses about most effective child-rearing practices: Mothers talk to their children at a level they can handle. They show interest in their children's activities and provide them with appropriate materials. They encourage their children and demonstrate and explain things to them. When they prohibit certain activities, they do so consistently and firmly. These parents are

imaginative and skillful as they strengthen their children's motivation to learn. They also give their children a sense of task orientation. Such parents serve as designers and consultants, creating an environment that nurtures children's curiosity—one that is filled with manipulable, visually detailed objects, including toys and other materials. White has suggested that these parents provide a world for children to play in. Rather than teach directly at prescribed times, they can do a lot of it "on the fly."

Effective teachers of young children use the same model: They, too, serve as designers and consultants, creating a world in which children can learn through play opportunities that increase the educational value of play.

Krown (1974) has described such a model of teaching in her report on a program for what she called "disadvantaged children" in Israel. In the beginning, play activities were highly stereotyped. Two years later, the children who had gone through this program had modified their play. The quality of richness within the play is evident in Krown's descriptions. In order to effect this change, the teachers supported purposive activity by inviting themselves into children's play. They sometimes added new materials or asked questions to stimulate detailed observations and play, often helping children to recall and associate prior experiences. Often teachers developed discussions, took children on field trips, or introduced books to provide children with additional information to use in their play.

In this setting, children were allowed to control their world, maintain a sense of suspended reality, and motivate their own play activities; the teachers' actions helped the play become more educational.

Tizard, Philips, and Plewis (1976a, 1976b, 1976c) examined the differences in teachers' behavior in relation to children's activities in three different preschool settings. The children's play in the traditional nursery schools was significantly different both from play in nurseries without qualified teachers and play in schools with language programs. In these nursery schools, the least amount of symbolic play and the greatest amount of "appropriate" play (e.g., play that exploits the properties of the materials and fails to engage in the development of symbolic themes) were found.

Many educators assume that the intrinsic motivation of self-initiated play offers the type of serious absorption that ensures learning. Tizard et al. (1976a, 1976b, 1976c) argued that in practice other elements of free play alter this absorption. In their study, most of the observed children's play was assessed as being at a low level. Children usually played brief and simple games and moved from one activity to another. Although 3- and 4-year-old children can be persistent, some elements in the free-play nursery setting may work against developing longer attention spans. Tizard and associates attribute their results to the wide range of alternative play material available, the teachers' lack of pressure on the children to work to their maximum capacity, and the large group of other children who provided distractions. In only 2% of the observations were staff members observed playing with the children. They hardly interacted with children in their activities and did not stay with them long enough to help initiate and sustain a complex game or construction. Such teacher behavior may have resulted from a belief that self-initiation is of prime importance.

Tizard et al. (1976c) assumed that the direction of the teachers' activity probably influenced the degree of symbolic play among children. In the traditional nursery schools teachers directed most of their energies to providing a variety of "creative" activities for the children to explore daily, such as collage making, finger painting, and leaf painting. The children used the materials the way the teacher intended, but symbolic play hardly developed. In comparison, both the nursery schools with language programs and those that were not staffed by qualified teachers offered fewer such activities. Teachers spent their time providing language instruction and conversational exchanges with the children in the language-oriented type of program, while in the other type the teachers exhibited less educational interest and expertise.

Young children's play behavior changes socially and cognitively as they grow. Teachers can observe children's play behavior in the classroom to gain a sense of the level at which children are playing in the different play areas. They can develop play interventions, modifying the setting, adding new materials, asking children questions, moving into the children's play long enough to guide their play, and immediately moving out of the play situation. They must be careful that the activity continues to be play when they intervene, taking care, for example, not to make children become conscious of reality or of their authority.

Teachers can support young children's play by accepting children's existing play patterns, gradually inviting children to join a small group involved in new activities without forcing anyone. Those children who prefer not to engage in group activities should be excused and provided with an alternative activity. Play activities demand that children consider the feelings of others, cooperate, conform, and be assertive without being aggressive. Children engage in different forms of play, such as playing alongside a friend, playing together with other children, and playing by themselves, exploring the properties of play materials to develop themes.

Children who play alone should not be forced to participate in cooperative play. Teachers can encourage these children to cooperate by asking them to help clean up after snack time. They can extend young children's play to enrich their social experience. Intervening appropriately in the play of young children helps them develop their social skills. Play intervention may require a suggestion, a supportive comment, or the addition of accessories to encourage children to engage in a play activity.

Children's play sometimes fails to be productive. If a play activity bogs down, or if it becomes overly repetitive and fails to move anywhere, it can create conflict among children and lead to destructive behavior. Teachers may need to intervene in the children's play for it to become educationally productive by using a number of different intervention strategies: instruction, praise, maintenance, conversation, demonstration, redirection,

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and participation (Spidell, 1985). Instruction is a strategy teachers use to tell children a fact or concept that will move the play along. Teachers praise children's play behavior to show their approval and support of a specific behavior so that other children will imitate this play behavior. Maintenance strategies are used to help children cope with problems arising from a crowded space, insufficient materials or equipment, disagreement about rules, and so forth. Teachers use conversation to engage children in a dialogue about their interests and activities, demonstration to show children the way to do something, and redirection to suggest alternative activities. Finally, teachers engage in participation when they join the play activity for short periods of time.

Teachers vary in their choice of strategies for play interventions; some, of course, have particular favorites. Spidell (1985) reported that not all of the strategies described above were equally effective in moving the children's play along. In most cases, teachers in this study combined the different intervention strategies to enhance the dynamism and productivity of children's play.

The most powerful strategy teachers employ as a play intervention is never observed in the early childhood classroom because it takes place before the children initiate play. This strategy is preparation: setting the stage for play before children arrive in school. The teacher intervenes most effectively by organizing the physical setting so that space and materials conducive to productive play and proper classroom behavior are available in each play center. Once the stage is set, the teacher can suggest play activities and offer resources that permit play activities to develop. Teachers can share information with children about play themes by reading books to them, holding discussions, inviting resource persons, or taking children on a field trip. These experiences permit children to extend their play and expand on what the teacher originally provided.

When should teachers intervene? How far should they go in extending play? This can only be judged situationally. The judgment must be based upon a knowledge of children in general and the children in a particular play situation, as well as a knowledge of the kinds of play activities that might be productive at a given time. Too much intervention inhibits play. At the same time, the absence of intervention can keep play from achieving its potential. Teachers have to strive continually for a balance that avoids either of these extremes.

Conclusion

The challenge of play for teachers, parents, and recreational workers is to intervene in order to optimize the educational consequences of play without sacrificing its essence. Children can be seduced into games for adult purposes. They can mouth phrases far beyond their ability to comprehend. They can repress their needs, their desires, even their intellectual ability in order to please adults. All activities in children's schools and homes need not be play and should not be play, just as all activities in home and school need not be educational. Teachers can distort play activities if they intervene too much. They can also miss opportunities for promoting learning if they do not intervene. Without some help, children's activities can become repetitive, stereotyped, and devoid of educational consequences.

The key, then, is balance. Sensitive and provocative balance, design, and consultation can help move children's activities along so that their thinking moves along as well. Learning can occur in a context of playfulness. The essence of good teaching and good parenting lies in this ability to think about the needs of young children, to respond, to intervene without unnecessary interference and distortion. Perhaps this requires adults who themselves bring a quality of playfulness as well as respect to their relations with children.

In summary, the challenge of play may be as much the adults' challenge as the children's. An understanding of the reasons for children's play, as well as its consequences, may help educators to perceive play as a potential rather than as a challenge.

Suggestions for Further Reading

Garvey, C. (1977). *Play.* Cambridge, MA: Harvard University Press. Provides an overview of types of play and ways play has been studied and describes Garvey's research on social and linguistic play.

Rubin, K. H. (1980). Fantasy play: Its role in the development of social skills and social cognition. In K. H. Rubin (Ed.), *New directions in child development: Children's play. No. 9* (pp. 69-84). San Francisco: Jossey-Bass. Compares the influences of fantasy play and peer play in relation to children's development of social skills and understanding.

Sutton-Smith, B. (Ed.). (1979d). *Play and learning.* New York: Gardner Press. Describes the views of a number of major play theorists and researchers. Reports on their work and discusses their ideas.

Weininger, O. (1979). *Play and education: The basic tool for early childhood learning.* Springfield, IL: Charles C Thomas. Provides a basic overview of the ways play has been used in educational practice.

Recommended Films

Children's play. (20 minutes, color). CRM. McGraw-Hill Films, 1011 Camino Del Mar, Del Mar, CA 92104. Discusses the importance of play in children's growth and development.

Child's play and the real world. (18 minutes, color). Davidson Films, 165 Tunstead Ave., San Anselmo, CA 94960. Shows the intimate, colorful world of children's play and the importance of play in development.

Facilitation of children's dramatic play. (29 minutes, color). Campus Film Distributors, Inc., Two Overhill Rd., Scarsdale, NY 10583. Presents a number of examples on ways teachers can encourage dramatic play.

Essay:
Play and the Origin of the Species

Michael J. Ellis

Our actual beginning as a species is lost in the mists of time. However, as we gaze backward toward our origins, we see some clues as to why and how we are now as we are. Usually, the attempts to picture our evolution are restricted to physical form, mostly because it is only the bony structures and stony artifacts of some of our precursors that remain. From those hard objects, we derive stories of our beginnings. Rarely do we take another approach—first trying to imagine the behavior of our precursors and then speculating on how their form was determined by their behavior.

This essay takes the latter approach and considers the evolutionary significance of a behavior, play. It postulates that in the grand design of things, play was a requirement for the evolution of mammals. Play, and the propensity for it, was necessary for our evolution. Our ancestors were playful and because of it, they survived. Although the behavior itself is complex, the underlying rationale for its existence is simple. Some early people survived because every now and again one of them, in going beyond the narrow habits and conventions of the time, stumbled across a new idea or practice. When these findings or inventions were beneficial, they tended to survive.

Survivors in a competitive situation had to be relatively more successful than their competitors. Variations in the capacity to exhibit tried and true behaviors with greater power and endurance were rewarded. Individuals with more power and endurance survived to breed and so eventually stabilized the beneficial variation in the gene pool of the species. In the same way, successful behavior in the form of skills, attributes, and propensities stabilized the related forms that permitted their expression. Thus, variation in the central nervous system and the capabilities and behaviors it produced were also subject to selection and stabilization.

Of course these organizations that are bred into the soft tissue of the central nervous system have not survived in the sense that the bones of our ancestors have. But their effects have survived in two forms. One kind of evidence is the playful nature of some of the hard artifacts that were made by our precursors. Some cave paintings, in which early artists recorded their observations of the important and the sacred, reveal a playful nature. We can recognize and appreciate these touches to this day. The other form of evidence lies in our gene pool, the source of our current playful propensities and capacities. The

process of natural selection preserved and accentuated those earlier playful characteristics, and they live to be examined in ourselves today, albeit in exaggerated form.

Our behavioral propensity to play has intrigued us. For many generations, we have pondered the role that play has in our existence. In a materialistic and direct sense, play seems to be unnecessary for immediate survival. There do not seem to be immediate and critical consequences that permit the pressures of a competitive environment to select for this behavior and stabilize the soft tissue structures that permit or encourage it. Play somehow lies outside the normal explanations for the shape of our other features; it is seen as enigmatic. This has given rise to many fanciful explanations that go beyond those used to explain the other forms and functions of our existence. However, play can be explained using exactly the same theories used to account for the evolution of other characteristics.

One of the principal characteristics of mammals is that they are behaviorally adaptable. They learn readily. Their biobehavioral "ace in the hole" is their ability to change at a faster rate than can be driven by the gradual evolution of the gene pool. In fact, this characteristic behavioral plasticity is a most powerful evolutionary advance and is responsible for the enormous success of the mammals. While there are narrow and stable niches occupied by mammals, many mammals, and particularly the recently evolved species, make a specialty of not being specialized. The mammal that is highly predictable, or that does not notice the opportunities or challenges presented by change in its niche, does not last for long. Whenever the environment is changing it selects for playful individuals. The underlying reward mechanisms for playing that exist in the soft tissues will be selected for and enhanced over the generations. Playfulness is thus stabilized and enhanced from generation to generation by the genes.

The propensity to play is a biological system for promoting rapid adaptation to threats to survival that cannot be predicted. Playfulness, then, is characteristic of animals that make a specialty of being adaptable, and is a prime capability in changing and changeable settings. Playfulness is well developed in the pack hunters and scavengers, bears, and of course the anthropoids. Naturally, we would claim that humans are the most playful and most adaptable of all.

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Playfulness as a behavioral propensity is at the center of the evolution of mammals.

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Seeking change for the rewards inherent in asking and answering questions about the physical and social environment is the characteristic that has set mammals, and particularly humans, off on their evolutionary path as a species. This same propensity also launches and sustains the explorations of the individual. Learning results from play and forms the basis for subsequent forays into the unknown.

The propensity for play is in fact the learning mechanism applied to the unique and unpredictable elements of each individual's existence. In his book, *Design for a Brain*, Ashby (1960) put it well:

> Its peculiarity is that the gene-pattern delegates part of its control over the organism to the environment. Thus it does not specify in detail how a kitten shall catch a mouse, but provides a learning mechanism and a tendency to play, so that it is the mouse which teaches the kitten the finer points of how to catch mice. This is regulation, or adaptation, by the indirect method. The gene-pattern does not, as it were, dictate, but puts the kitten into the way of being able to form its own adaptation, guided in detail by the environment. (p. 234)

I believe that the above arguments prove convincing: play is never "just play." The lesson is clear. Some substantial part of each day should be devoted to play. For it is during play that humans are most human. They learn to extend the limits of human experience and to develop the capability to deal with the unknown. No matter what the imperatives of the known present, educators should accord equal weight to the imperatives of the unknown future of the individuals and the species. Playfulness is a critically important characteristic of humans. Its behavioral correlate, play, should be both prized and encouraged. It brought us to where we are now, both as a species and as individuals, and will be the basis for our future adaptation to the unpredictable future.

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Essay: The Struggle Between Sacred Play and Festive Play

Brian Sutton-Smith

In many tribal cultures festival play is sacred play. Excesses of behavior are decreed as appropriate to certain seasonal or religious ritual occasions (Turner, 1984). In modern civilization, however, we tell ourselves that play is not a sacral and an obligatory performance whether it is excessive or not; rather, it is a profane and optional one. At least that has been our general message since the advent of industrialism. When in 1695 John Locke discouraged his readers from allowing their children to play in the streets and urged that they were better off inside the house with their alphabet blocks away from the company of raucous children, he initiated what was to become a new distinction. Now there was to be educational play. In the course of the next few centuries, and in the hand of Pestalozzi and Froebel and their successors, this was to become a new kind of sacralized play at least amongst a minority of educators, particularly those concerned with preschool children. In the present century social science studies have gone way beyond this by suggesting that educational play is directly related to how children learn, how they solve problems, and how they become creative. The present book is itself an illustration of the emergence of the research-based view that schools have a great deal to gain by basing their curriculum on children's play. What we are left with then in modern life is the notion, not of one kind of play that serves to unify the tribe, but of two kinds of play, an educational one that is somewhat sacred, or fast becoming so, and another more festive kind that we hope to confine to the playground, but that often has a tendency to sneak into the school and upset our lessons, whereupon it is termed "illicit" play (King, 1982a).

The contemporary situation is complicated further by the fact that even this distinction is too simple. Modern organized sports have also achieved a kind of international sacralization in this century. And given the rapid and massive expansion of the toy market in the past two decades, together with its accompanying literature assuring us of its educational value, one can assume that it too might in time acquire a similar odor of virtue. When one considers the agitation against war toys, it is quite possible to envisage a time when the toy industry is completely domesticated by conservative public opinion

and can take on the ideal status that already is granted by us to such "educational" activities as number games, word games, and game simulations of everything from geography to the marketplace. One can see that even the cartoons today are much more domesticated than those of just 20 years ago. Whereas Bugs Bunny and Road Runner were quite violent characters who were constantly undergoing transmogrifications of their bodies and identities, the typical modern cartoon (e.g., G.I. Joe), though it is full of massive explosions and property violence, carefully veils from us the death or dismemberment of particular individuals, and the cast of characters always displays a proper balance of the sexes and minorities. The cartoon is on the way to the kind of idealization that the jigsaw puzzle has had for 100 years.

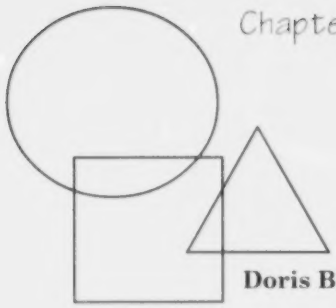
So we are left a puzzle. If the history of play within our own century has been one of increasing rehabilitation from its earlier status as idleness and triviality or even bestiality, and now its increasing educational idealization, will there be any scope left for festive play? Will there be an echo of the bacchanalian revelry spoken of by Rabelais in 1530? My own guess is that there will be. That in a more modest way festival play is still all about us, but it is more diffuse and private than it was in the time of the full-scale Mardi Gras, the Black Mass, the Boy Bishop, or the Lord of Misrule. One hears it in the shouting crowds at sports, in the shouting children at recess, and in the noisiness of taverns, as well as at Atlantic City. In the nursery school one finds it more often in that sort of play in which the children never seem to settle down to any coherent effort but go on from one thing to the next with a kind of revelry and nonsense in their behavior. They may chase one another round and round the room but never seem to catch up with one another and never seem to mean to catch up with one another, but all the time are yelling, "I am going to catch you," or "No you are not," neither of which ever truly happens. This is a game of chase in which they only pretend to chase. Or in another piece of playful nonsense, as fast as they set the table with plastic dishware they sweep it onto the floor, laughing loudly as they do so. This hilarity and disorder persists amongst the very young except in very strictly governed environments, and even in the latter cases it persists more secretly and more perversely.

The point of these remarks is to remind us that while we are discussing play "as a learning medium" we need to remember that it has a long history also as a learning medium that is not strictly school oriented. It has always been a learning medium as in the acquisition of skill at chess, at mancala, at mock physical warfare, and in physical play fighting or rough-and-tumble. It has always been central to learning the social principles of dominance and submission and one's place in the social group, which includes the learning of child politics. In the past we could take for granted these kinds of social learning that were afforded

through play. But in many modern families, in which street play is either not allowed or not possible and much time is spent in solitary play in front of the television, there is a need to make plentiful recess time at school so children can go about their own political education. I have recently had the thrill of observing some preschools in which the children arrive at 7 a.m. and leave at 6 p.m., and in which the period before 9 a.m. and after 3 p.m. is devoted entirely to group self-initiated play. The levels of play and the children's love of their exciting day at school are absolutely remarkable.

The examples of "nonsense" play mentioned earlier illustrate that play is a learning medium with a destiny outside the classroom. These examples also illustrate that play is a medium of impulsivity and impulse control. This hilarity and nonsense is not so generally appreciated by adults, but it is a part of adult behavior and it is a part of universal human behavior. Despite the appearance of noise and nonsense, this kind of play involves highly controlled patterns in the strict imitation of others and in the traditional forms of the games, as in Ring-a-Round the Roses, in which the players collapse upon the ground in disorder after a period of strict unison. I would suppose that the great freedom for license in such behaviors as shouting and running is what makes them so rejuvenating to their participants. Understandably, most teachers would be happier to tolerate them out of doors.

In sum, I argue that while play can be educational in the school sense, we should never forget that its much more vital role in learning has to do with child culture, not with adult culture; and furthermore, it has a festive role to perform that is often the very antithesis of our own educational concerns.



Chapter 2

Methods of Studying Play

Doris Bergen

A dramatic increase in the volume of research literature on play has occurred. Britt and Janus (1941) reported that at the end of the nineteenth century there were 10 empirical studies of play; in the 1930s there were 70 published. In their recent comprehensive review, Rubin, Fein, and Vandenberg (1983) list 450 play research citations. Over 50% of all play research studies have been published in the last 10 years (Pepler & Rubin, 1982). These studies arise from a variety of theoretical and conceptual bases. Researchers differ in the definition of play they accept, the questions they ask, the assumptions they make, and the data collection and analysis methods they use. Their interpretations of results and the implications for practice that they draw from the results are also diverse and, in some cases, conflicting.

In planning studies of play, researchers have to consider two levels of design. First, they must meet the methodological standards that are accepted practice in social science research, and second, they must address some special research issues that are related to the nature of their topic—play. As Vandenberg (1982) remarks,

> In some ways, "play" is a clown in the realm of psychological phenomena. It has eluded precise formulation, and at times seems to be playing hide-and-seek with us. We respond by either dismissing it as an unimportant prankster, or by trying harder to find it. (p. 15)

One of the reasons for the marked increase in the study of play is advances in methods for studying it; it is now possible to investigate questions of play development that previously seemed to be inaccessible. Play research is still in its infancy, however, and attention to research methods is of major importance if knowledge of play is to continue to grow.

This chapter describes the decisions that researchers must make in planning and conducting their studies, presents typical models used for studying play, and reviews some questions of current research interest. Three research studies that can serve as prototypes of play research design are presented and ways of adapting these designs for the use of educational practitioners are suggested.

Decisions on Theoretical Questions

The major theories of play proposed by theorists over the past 150 years have been described in chapter 1. The purpose of a theory is to conceptualize knowledge into a

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systematic structure that can then serve as a guide for explaining phenomena and solving problems. Theories cannot really be true or false; they can be useful or not useful. Useful play theories assist researchers in identifying problems for study, determining the methods to be used, and interpreting study results. The theoretical viewpoint of the researcher guides the planning and implementation of the research design; thus, the first steps in planning research on play are to clarify the assumptions on which the theory rests and to identify testable hypotheses that can explain the phenomena in question from that particular theoretical perspective.

As the discussion of theories in chapter 1 has demonstrated, researchers have yet to agree on a common theoretical paradigm for play. Those who wish to study play must first make some decisions about the theoretical perspective they will embrace. They must decide (a) whether play is a phenomenon that can be productively studied; (b) whether the study will focus on play as an individual or as a cultural phenomenon; (c) on what portions of the theory of play their research will focus; and (d) what assumptions underlying the theory will influence their research plan.

- ***Deciding whether play is a researchable phenomenon***

Although the question of whether play is a possible or desirable topic of study has been answered with a resounding "yes" by many present-day researchers, in the not too distant past this question was a prominent one. Because determining precise classifications of play has been difficult, play has often been conceptualized as "what is left after all other behavior is explained" (Sponseller, 1982, p. 227). Gilmore (1971) calls this the "wastebasket" definition of play. This perspective would lead to the decision not to study play as a separate phenomenon but to study all other phenomena until there is nothing left to be called play. Schlosberg (1947) espouses the view that the concept of play is not useful for research and should be discarded. Obviously, researchers who decide to study play will not agree with that viewpoint.

- ***Deciding whether play is an individual or a cultural phenomenon***

Once researchers have decided to study play, they plan their studies from theoretical vantage points that are usually determined by their own professional disciplines. Sutton-Smith (1979b, 1980) indicates that there are two major "play theory pardigms" (p. 3) for studying play. One of them, which he calls primary, is focused on individuals. It is used primarily by psychologists and educators. They view play as a voluntary activity that is under the player's control and through which the player may gain cognitive, creative, or other developmental organization. The secondary paradigm is that used by anthropologists, folklorists, and sociolinguists. In this model, play is seen as a way of organizing collective behavior and communicating with others. Play reflects and influences the culture and social structures of the larger society, which are of interest to these theorists.

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with others. Play reflects and influences the culture and social structures of the larger society, which are of interest to these theorists. Although some researchers combine an individual and a cultural focus, usually they operate within one or the other of these paradigms.

- ***Deciding on the specific theoretical focus of the phenomenon***

Researchers must also decide on the focus of study within a particular theoretical perspective. According to Sutton-Smith and Kelly-Byrne (1984), this can be difficult because play theories often have a bipolarity. That is, they have features that suggest play leads both to equilibrium and disequilibrium and promotes both conservation and innovation in human beings. For example, Huizinga (1950) asserts both that play is a voluntary and fun-filled activity and that it involves bloody, fatal contests. Piaget (1962) states play leads to cognitive consolidation but that it also is characterized by the distortions of assimilation. Singer (1973) stresses both the problem-solving and creativity-enhancing features of play. Bateson (1956) describes both the metacommunicative and the paradoxical communicative functions of play. Thus, researchers must decide on whether they wish to focus on "rational or irrational," "civilized or uncivilized" aspects of the play phenomenon (Sutton-Smith, 1985).

- ***Identifying the assumptions that underlie the theory***

Ellis (1973) outlines the assumptions that underlie various theoretical explanations of play. These assumptions both inform and limit the way play research may be conducted. For example, a researcher who accepts the theory of Schiller (1954), who defined play as an energy-release mechanism, would assume that children's excess energy cannot be stored but must be expended through play. One who agrees with arousal-seeking theory (Berlyne, 1960; Shultz, 1979) assumes that children need an optimal level of arousal and must meet this need to seek stimuli through their exploration and play. Researchers from these two theoretical perspectives might have very different studies, because the set of assumptions underlying their theoretical frameworks will influence the researcher's plan. The hypotheses or questions of interest will also be affected by these assumptions.

Decisions on Research Definitions

After researchers have decided on their theoretical orientation, they must move on to specify the operational definitions under which their research will be conducted. That is, play must be defined in behavioral terms that will enable the researcher to collect information about the phenomenon. There is no one set of behaviors that are always play. Almost any type of behavior can be playful, depending on the intentions of the subjects engaged in it. Blurton-Jones (1972) notes, for example, how adult observers can easily confuse fighting and play-fighting because the observable behaviors are so similar. Also, as Neumann (1971) points out, the elements that signify play may be present in varying amounts in different behaviors that could be called play. There are points along this continuum of behaviors that might be categorized as play or not.

Although behaviors are sometimes difficult to define, Rubin et al. (1983) state that

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defining play in behavioral terms is easier than defining play in theoretical terms. A range of behaviors have been defined as play and have been studied with methods that draw upon a number of useful research models. Definitional decisions that researchers must make involve: (a) deciding whether to focus on behaviors related to the motives of play or to the content of play and (b) specifying the operational definitions (i.e., the precise categories or global qualities of play that are to be observed and recorded).

- ***Deciding on a motive or content***

Ellis (1973) subdivides play into two categories that are determined by the kinds of questions researchers ask. Some focus on motives (i.e., asking why and when play occurs); others on content (i.e., asking what are the constituent elements of play). Questions oriented toward motives include those from early classical theorists and those from modern researchers concerned with external and internal motivational conditions (Berlyne, 1966; Ellis, 1973; Hutt, 1971; Shultz, 1979).

Dynamic theorists of the psychoanalytic school (e.g., Erikson, 1963; Freud, 1920/1961; Klein, 1955) also focused on the motives for play. They saw play as a means for ameliorating experiences that have been unpleasant or that are out of the child's control and stress the role of play in mastering emotional experiences.

Although Piaget (1962) described a motivational rationale for play, he primarily focused on problems of content, such as organizing structures, stages of development, and transitional processes. Theorists from the secondary play theory paradigm (e.g., Bateson, 1956; Schwartzman, 1978; Sutton-Smith, 1985) have also been primarily concerned with questions of content and structure.

Those researchers who focus on motives typically ask questions about the antecedents or the consequences of play and the conditions that elicit it. For example, Lepper and Greene (1975) and Perry, Bussey, and Redman (1977) are interested in effects of extrinsic reinforcement on play behavior. They have studied whether providing external rewards for play behavior increases or decreases children's playfulness. Their work is based on the assumption that play requires inner motivation and control. Their results, indicating that spontaneous play in playful children decreases if it is first rewarded and then the reward is withdrawn, are explained by the hypothesis that external reward turns the play into work.

The majority of Piagetian-based researchers focus on content questions (e.g., Bretherton, O'Connell, Shore, & Bates, 1984; Fein, 1975; Fenson & Ramsay, 1980; Garvey, 1977a; McCune-Nicholich & Bruskin, 1982; Nicholich, 1977; Sinclair, 1970). They try to answer questions about the structure of pretense, the nature of its transitions, and the relationship between its development and cognitive, language, and social organizing schemes. Some of these researchers also draw assumptions from the communication theory of Bateson (1956).

An example of this type of research is that of Bretherton et al. (1984), who examined three levels of role representation (i.e., child as agent, doll as active recipient, dolls as both agent and recipient) in toddlers' free and elicited pretend play with realistic, ambiguous, and counterconventional objects. They described how the nature of pretense

is affected by the age of the children, the level of role representation, and the realistic qualities of the objects; and they related these findings to relationships between language and symbolic action.

Ethnographic researchers (e.g., Aldis, 1975; Schwartzman, 1978) also ask content questions. For example, Schwartzman analyzed both the content of children's sociodramatic play and their social status within the preschool classroom and described how the classroom social structure (i.e., the context of play) influences the pretend play roles (i.e., the text of play). Aldis observed children's play in naturally occurring settings and described categories of play-fighting in detail. He suggests that research priority be given to collecting descriptions of the naturally occurring content of play. Researchers who study games (e.g., Roberts, 1980; Roberts & Sutton-Smith, 1962; Sutton-Smith & Rosenberg, 1961) also focus on content questions. For example, Sutton-Smith and Rosenberg (1961) looked at the changing nature of children's games over a 60-year period.

Because the specific operational definitions of the play behaviors to be studied are based on whether the questions to be answered focus on motive or content, researchers must choose their orientation early in the planning stage in order to further define the processes or the structures to be studied.

- ***Deciding on the operational definitions***

Rubin et al. (1983) outline the three approaches typically taken in defining play behaviorally: (a) listing psychological dispositions or sets marking its occurrence; (b) describing observable behaviors; and (c) specifying the contexts in which play behaviors are likely to be exhibited. The six characteristics included as psychological dispositions are described in chapter 1. They include factors such as self-imposed motivation, control, goals, and rules; active engagement; and nonliterality or playfulness.

Although a number of specific components of psychological dispositions (e.g., inner control) have been identified (Lieberman, 1965; Neumann, 1971; Rubin et al., 1983); these components are not discrete variables. The amount of the characteristic present in a particular behavior determines whether it is play. Researchers, therefore, must define at exactly what point the behaviors they observe will be categorized as play and must specify these categories in operational terms.

These categories are defined differently by various researchers. For example, Hutt (1979) and Hutt and Hutt (1977) have distinguished between the dispositions present in exploration as compared to play. Hutt (1971) separates behaviors into (a) epistemic behaviors, which are used to acquire information (i.e., "What does this object do?"); and (b) ludic behaviors, which are playful uses of past experiences (i.e., "What can I do with this object?"). Her work is devoted to studying temporal and psychological differences to clarify this distinction. Henderson (1984) indicates that other researchers do not emphasize this separation and consider "exploratory play" as an appropriate category of study.

Wohlwill (1984) discusses similar definitions, specifically in regard to object play. He characterizes exploration of objects as information extraction and play with objects as transformation (i.e., either reality or fantasy transformation). He proposes a three-stage model: undifferentiated exploration, transitional play, and pretense. McGhee (1984)

further characterizes exploratory play as interesting but not funny and playful play as having humorous incongruities, determined by the child's playful frame of mind.

Researchers who describe play in terms of observable behaviors also use a variety of categories. Piaget classifies play into three categories: practice, symbolic, and games-with-rules (Piaget, 1962). Piaget categorizes imitation and play as distinct, whereas Millar (1968) includes some behaviors in a category of imitative play. The categories studied by Garvey (1977a) include play with language, motion, objects, and social materials. Parten (1932) identifies levels of social play: onlooking, solitary, parallel, associative, and cooperative. Smilansky (1968), Rubin, Maioni, and Hornung (1976), and Sponseller and Jaworski (1979) have combined Piagetian and Parten categories of social play to develop their taxonomies.

Researchers on pretend play also attend to categorizing observable behavior. Pretense is variously defined by its levels of cognitive and language complexity (Nicolich, 1977); object and agent characteristics (Fein, 1981); social and cognitive elements (Smilansky, 1968); and thematic content (Saltz, Dixon & Johnson, 1977). Many theorists and researchers do not include the category of games under the rubric of play (e.g., Rubin et al., 1983), whereas others consider play as a global category that covers all ludic activities throughout the life span (e.g., Herron & Sutton-Smith, 1971).

Definitions by context specify as play those behaviors that occur in settings designed for play. Rubin et al. (1983) describe the methods used in controlled research settings to elicit play behaviors. The settings designed to elicit play usually include: (a) familiar peers and interesting toys and/or materials; (b) adult permission for children to choose what they wish to do; (c) minimally intrusive adult behavior; (d) an atmosphere of friendliness and safety; and (e) a schedule ensuring that children are rested, fed, unstressed, and healthy. Rubin et al. state that, from this perspective, play is defined as what occurs in these settings.

Contextual elicitors of play may be culture specific, however. Schwartzman (1984) indicates that ethnographic literature cites instances of imaginative play in which the contextual requirements—access to play props, space and time for play, encouragement and modeling by adults—are not evident. She concludes that in many cultures children use whatever is available for play and have self-designed toys.

Because of the problems inherent in stating specific operational definitions, Matthews and Matthews (1982) suggest using a paradigm case approach that involves making judgments of play on the basis of global information. Observers are asked to identify pretense on the bases of their judgment that, "This is a case of fantasy play if anything is!" (p. 26), and the concept of fantasy play is not defined in specific behavioral terms. They report that naive observer judgment of cases of play has high reliability. Because this approach does not specify the discrete behaviors that are the components of play, it may not be useful for investigating some of the questions of research interest.

Decisions on Research Methods

All researchers must address a common set of methodological questions. The characteristics of subjects and methods of selection, specific data collection procedures,

methods of data preparation and analysis, and plans for reporting results must meet the criteria of each researcher's own discipline. Researchers must decide on the reliability of their measures (i.e., whether their data collection methods provide similar information across times and settings). They must resolve validity problems (i.e., whether their research really measures what they intend it to measure). They must also face issues of generalizability, (i.e., whether they have used methods that permit application of their results to other settings, conditions, or populations). Often, they must also evaluate the educational significance of their results (i.e., whether their findings have implications for educational practice). A detailed discussion of these methodological issues and of general research design and analysis procedures is beyond the scope of this book. Suggestions for further reading on research methodology are given at the end of this chapter.

In addition to resolving the methodological concerns of all scientists, researchers on play have some additional methodological problems because of the nature of the topic. Careful attention to the methods selected for the study of play are required if the researcher is to have reliable, valid, and generalizable results.

- ***Deciding on methods for studying play***

Methodological decisions include (a) choosing the specific testable hypotheses or questions of interest, (b) selecting the subjects who are likely to exhibit the behaviors to be studied, (c) determining the context in which the behaviors may be found, (d) specifying the procedures and/or instruments that will be used to collect information about these behaviors, and (e) choosing the appropriate methods for analysis and reporting of this information.

Typical methods used for studying play include (a) naturalistic observation; (b) experimental manipulation and observation; and (c) self-report/performance measures, such as interviews, questionnaires, and psychological or informational tests. Most studies of young children's play conducted in the 1920s and 1930s used naturalistic observation of play in home or nursery school settings. The play of older children was primarily studied with interviews or questionnaires. Although naturalistic and survey methods are still used, experimental approaches have become common. Not all methods are appropriate for all studies. For example, the laboratory or home observational methods appropriate for the study of pretense in toddlers may not be effective for studying this type of play in first-grade children. Similarly, an interview approach used to study middle childhood game playing may be less useful for studying emergent games of preschoolers.

Each of these methods and the specific characteristics of hypotheses, subjects, settings, and procedures are described in Tables 2-1, 2-2, and 2-3. Examples of researchers who use the various approaches are also presented.

Naturalistic observation studies typically have these characteristics:

1. The hypotheses usually focus on types of play that may be observed in particular settings, relationships between types of play and other areas of development,

TABLE 2-1 • Naturalistic Observation Methods of Studying Play

Questions of Interest	Age of Subjects	Settings	Procedures	Researchers
Social/cognitive play dimensions	Toddler/preschool/ kindergarten	Classroom	Time samples, social/ cognitive dimensions compared	Rubin et al., 1975, 1976, 1978; Sponseller et al., 1974, 1979
Pretense/language relationship	Infant/toddler	Home	Sequence of events, sensorimotor/ language relationships explored	Nicolich, 1977
Recess play/games	Elementary	School playground	Event samples, social/ cognitive dimensions compared	Eifermann, 1971
Adult/peer social play	Infant/toddler/ parent	Home/center	Sequence of events, social play interactions described	Hay et al., 1979, 1983; Bruner et al., 1976, 1982
Peer social play	Toddler	Center	Event, time samples, social play interactions described	Mueller et al., 1975, 1977
Physical/social play	Elementary	Parks, playgrounds	Events recorded on film, play fighting categories described	Aldis, 1975
Sociodramatic play	Preschool	Center	Sequence of events, text and context described	Schwartzman, 1978, 1979
Language/game play	Elementary	Streets, playgrounds	Game events, language samples collected and described	Opie & Opie, 1959, 1969
Physical outdoor play	Preschool/primary	Playgrounds	Time, event samples, social/cognitive types of play recorded	Frost et al., 1985

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stages of play development that occur naturally, ecological factors that influence play, and the nature of the playful social interactions of familiar adults and children.
2. The subjects are predominantly in the age range of infancy to kindergarten age, although a few observational studies have been done with older children.
3. The settings are typically the children's homes, day-care centers, preschools, or kindergartens. Sometimes play is observed in playground or community settings as well.
4. The procedures usually consist of event sampling (i.e., recording instances of the behavior of interest), time sampling (i.e., recording behavior at specified time intervals), or recording of cases (i.e., describing individual behavior over a longer time span). Observational coding instruments or narrative "running account" descriptions that are later coded are methods used to collect data. Videotape or audiotape recordings of the entire episodes of study are often made. Analyses may be quantified (i.e., with frequencies of behaviors recorded, comparisons of means or percentages, and statistical analyses as appropriate) or qualitative (i.e., narrative descriptions of the behaviors observed, case studies, or reports based on specific ethological models).
5. Suggestions for using these methods effectively include: (a) becoming knowledgeable about the historical body of literature on observational research and the typically used coding schemes and instruments that might be adapted to promote comparability with other studies, (b) determining the level of analysis appropriate for communicating clearly the results from a large body of data, and (c) specifying as many contextual variables as possible to enhance generalizability and clarify distinctions between developmental and contextual factors.

Characteristics of *experimental studies* of play are as follows:

1. The hypotheses address cause-and-effect questions, such as the effects of training or other interventions designed to improve children's play, or they explore questions of developmental stages in object exploration, pretense, peer play, or adult-child interaction. Antecedents and consequences of play processes are also studied with experimental methods, as are physical environment effects (e.g., influences of play space or object placement).
2. The subjects are primarily children from infancy through kindergarten age, with emphasis on the toddler and preschool ages. Few experimental play studies of older children's play have been reported.
3. The settings are usually homelike or playlike laboratory settings. Day-care centers and preschools where specified environmental variables can be controlled have also been used in experimental studies.
4. The procedures for studies that train children to engage in specific types of play include pretest intervention, and posttest; for developmental or ecological studies a set of play materials or a particular play setting is designed to elicit the play behaviors that are the object of study. Many of these sessions are also videotaped,

TABLE 2-2 • Experimental Methods of Studying Play

Questions of Interest	Age of Subjects	Settings	Procedures	Researchers
Levels of object transformation in pretense	Toddler/preschool	Laboratory/ testing room	Conditions varying by realism, responses to conditions recorded	Fein et al., 1975, 1979; Golomb, 1988
Fantasy/cognitive relationships	Preschool	Center/training room	Pretest, training in fantasy play, posttest	Saltz et al., 1974, 1977; Rosen, 1974
Pretense development	Toddler/preschool	Laboratory/ testing room	Modeling, eliciting of pretense under varied conditions, responses recorded	Bretherton et al., 1984; Fenson & Ramsay, 1980
Sociodramatic play intervention	Preschool	Center/in class	Pretest, sociodramatic play intervention, posttest	Smilansky, 1968
Activity level/ environment interactions	Preschool	Laboratory/ testing room	Camera recorded activity/movement/ play under varied physical environment conditions	Ellis & Scholtz, 1978
Social/language pretense interactions	Toddler/preschool	Center/ testing room	Peer dyads in settings with varied materials, interactions recorded	Garvey, 1977b
Elicitors of exploration/play	Preschool	Laboratory/ testing room	Responses in presence of objects of varied novelty & complexity	Hutt, 1971, 1979
Play/problem solving relationships	Preschool/ kindergarten	Laboratory/ testing room	Conditions varying in directness of problem solving suggestions/ play, responses to novel problems	Sylva et al., 1976
Fantasy play/TV relationships	Preschool	School center/ home	Pretest, television intervention, posttest	Singer & Singer, 1978, 1984

TABLE 2-3 • Self-Report or Self-Performance Methods of Studying Play

Questions of Interest	Age of Subjects	Settings	Procedures	Researchers
Game and play preferences	Elementary	School/home	Play preference list, self-report	Rosenberg & Sutton-Smith, 1960; Wolfgang, 1985
Imaginative play predisposition	Preschool/ kindergarten	Center/school/ home	Interviews with children/parents	Singer & Singer, 1973, 1978
Game and play knowledge and preferences	Elementary	Neighborhood	Questions on game knowledge	Roberts, 1980
Friendship/play relationships	Elementary	School classroom	Sociometric techniques	Hallinan & Tuma, 1978
Games/play	Elementary	University classroom/ neighborhoods	Retrospective reports, collectors' reports, published works	Abrahams, 1962; Brewster, 1953
Favorite play experiences	Elementary	University classroom	Adult retrospective accounts	Bergen, 1985, 1986
Basis of friendship (including play-related)	Elementary/adult	Varied	Interviews	Berndt, 1981a, 1982; Selman, 1981; Youniss & Volpe, 1978
Expectations for friendship (including play-related)	Elementary	Classroom	Essays	Bigelow, 1977

and behaviors are coded and recorded. Analysis is usually quantitative, but often also includes descriptions of play events or language sequences, with explanations tied to the theoretical model of the researcher.

5. Suggestions for using these methods effectively include: (a) monitoring the behavior occurring in the designated play setting to ensure that the characteristics

signaling it as play are present and that factors of novelty or stress are not affecting the quality or quantity of the play being observed, (b) extending experimental approaches over time and varying conditions systematically so that more complex types of play that are less easily elicited in an experimental setting can be observed, (c) using videotape or other procedures that allow subsequent observation of factors not initially the focus of the experiment, and (d) making the setting as similar as possible to the natural setting (which increases generalizability of results).

Self-report / performance measures (i.e., interview, questionnaire, and testing methods) usually have these features:

1. The hypotheses are oriented toward content (i.e., they are related to types of play or games and comparisons between respondent groups) or toward traits (i.e., they assess cognitive, personality, language, or other traits, such as imaginativeness).
2. The subjects are children of preschool age and older, ranging to middle childhood. Adults (parents, teachers) are also often subjects of study, in many cases they provide data to be related or compared to data collected from children.
3. The settings are varied and depend on where respondents are. Typically, they include school, playground, home, or neighborhood settings.
4. The procedures usually involve the use of a standardized or a specially designed questionnaire, assessment instrument, or interview technique, which is then analyzed according to methods appropriate for that instrument. It may yield quantitative or qualitative information and may include comparisons of groups or correlations of a number of measures taken on the same individuals.
5. Suggestions for using these methods effectively include: (a) providing children with the opportunity to gain familiarity with the tester or interviewer to increase the likelihood of optimal and accurate performance, (b) using the accepted practices of interview or survey research in selecting or designing the instruments so that results will be valid and generalizable, and (c) selecting a sampling method that will include representatives of all groups and ensure a high response rate.

Combinations of the naturalistic, experimental, and self-report approaches are also used. For example, observations in both a natural and a controlled experimental setting may be compared. Or, interviews with parents or children, as well as observational data, may be collected. Singer (1973), for example, combined interviews, projective measures, and naturalistic observations; Eiferman (1971) combined naturalistic observation and interview; and Smilansky (1968) combined naturalistic observation, experimental intervention, testing, and interviews.

- ***Methods for studying certain types of play***

A number of researchers have discussed methodological issues that must be addressed in studying a particular type of play. For example, Henderson (1984), in a discussion of research on exploratory play, stresses that although this type of play is strongly

influenced by the novelty of the objects in the environment, the social context is also an important variable. According to Henderson, three major approaches to studying exploration and exploratory play have been used: (a) controlled laboratory studies of perceptual (primarily visual) exploration of two-dimensional stimuli; (b) naturalistic studies of children's manipulation of and questions about novel objects; and (c) collections of exploratory/curiosity trait data from parent, teacher, or peer responses to questionnaires or rating scales. Methodological decisions include determining what objects to use (e.g., deciding what an object of moderate novelty looks like); selecting the categories of behavior to be observed (e.g., determining what is to be called exploration and what is to be called exploratory play); and planning the involvement of adults or peers (e.g., deciding whether adults will provide information, model behavior, or observe).

In a discussion of methodological issues related to the study of pretense, McCune-Nicolich and Fenson (1984) cite two paradigms that have been used for studying this type of play. Nicolich's (1977) study exemplifies a naturalistic observation method, conducted in the home or a homelike setting. In studies using this approach children typically have a range of toys from which to select. Adult roles usually include those of mother as a play participant, and researcher as a minimally intrusive observer rather than an elicitor of play. Play is observed over an extended time period.

The other method, exemplified by a study of Fenson and Ramsay (1980), is designed to elicit a particular set of pretense skills through adult modeling and play suggestions. This type of study is usually in a laboratory in which a set of play objects designed to elicit selected play behaviors are present. Adults are required to take specified roles in different conditions of the study. Observation of play episodes is typically for shorter time periods than in naturalistic studies. Elicitation procedures include having the experimenter present toys, model actions, give verbal suggestions, or combine actions. Mothers are usually involved as minimal participants or as observers.

McCune-Nicolich and Fenson (1984) indicate that, whether the setting is the home or laboratory, the sessions are usually videotaped. In addition to deciding on the paradigm to be followed, researchers must address problems regarding how their methodological decisions will affect children's behavior. For example, level of parent participation, degree of children's familiarity with setting and experimenter, and categories of play selected for analysis will affect the reports on level and content of children's pretend play.

Imaginative and thematic fantasy play have been studied in preschoolers and early elementary children with other methodological models. A model incorporating assessment of individual differences and correlations of levels of imaginative play with other variables has been used by Singer and Singer and colleagues (e.g., Singer, 1973, J. L. Singer & D. G. Singer, 1978; Singer & Rummo, 1973). Singer (1973) indicates that this model requires observational records from two independent observers, obtained over at least a two-day period. Interview procedures must follow a specific protocol, and reliable independent judgments on rating scales must be obtained on the variables of interest.

Thematic fantasy play training studies (e.g., Freyberg, 1973; Saltz, Dixon, & Johnson, 1977) involve assessing children's fantasy play skills before and after training. Saltz and Brodie (1982), in a critique of pretense training studies, note that the increases in some

types of cognitive functioning reported may be due to interacting factors not explored in present research designs. They indicate that changes observed after brief training do not necessarily mean that basic cognitive structures have been altered. They suggest that study of stability of effects over time and careful attention to the contextual elicitors of play is needed.

Studying games with rules involves its own set of methodological problems. Although observational methods have been used (e.g., Piaget, 1932; Eiferman, 1971), these methods are more difficult to employ with the older children who are the prime subjects for studying games. Because the children who play games with rules do not usually play in the school setting (as preschoolers do), it is problematic to plan unobtrusive ways to study them at play (Roberts, 1980). It is difficult to decide if the play observed in a public setting (i.e., school, street, playground) is a valid representation of the level or content of play during middle childhood. Methods typically include questionnaires (Sutton-Smith & Rosenberg, 1961); tests of game knowledge (Roberts, 1980); and observation/interview combinations (Opie & Opie, 1959, 1969). The development of young children's pre-game playing strategies have been studied with experimental methods (DeVries, 1970).

Three Models of Play Research

Three play research models are presented that can be adapted by practitioners who are interested in studying children's play. The first is a two-dimensional naturalistic observation model that has been used to study whether the types of play described by Parten, Piaget, and Smilansky follow developmental sequences (e.g., Rubin, 1985b; Rubin, Maioni, & Hornung, 1976; Rubin, Watson, & Jambor, 1978; Sponseller & Lowry, 1974; Sponseller & Jaworski, 1979). The second model is an experimental one used to study the development of object substitution in the transformations occurring in early pretend play (e.g., Fein, 1975; Fenson & Ramsay, 1980; Golomb, 1977). The third model, a self-report survey method for studying the games of elementary-age children, has been used by researchers in a variety of cultures, times, and places (e.g., Nadelman, 1970; Rosenberg & Sutton-Smith, 1960; Terman, 1926).

- ***A naturalistic observation model***

The version of the naturalistic observation model to be described in detail is that developed by Sponseller and colleagues. This model features the social play categories of Parten (i.e., solitary, parallel, associative, cooperative) and the cognitive play categories of Piaget (i.e., practice, symbolic, games with rules). It includes Parten's "onlooking" category to record the amount of time young children spend observing other children's play. The coding instrument is two-dimensional, with one dimension being the Parten social play categories (on the vertical axis) and the other being the Piaget cognitive play categories (on the horizontal axis). The model combines the social and cognitive categories into "play complexity" cells. For example, in the first cell, behavioral instances of children watching peers' practice play (onlooking-practice) are recorded. Similarly, sociodramatic play (cooperative-symbolic) is recorded in cell 14. The Sponseller et al.

observational coding instrument is shown in Figure 2-1 with examples of play behavior that might be recorded in each cell. The Sponseller et al. model was designed to be used with toddler-age children whose play includes few examples of product-oriented (constructive) play, but numerous examples of brief social interactional (associative) play.

The objective of the Sponseller and Jaworski (1979) study was to observe the developmental trends in social quality of play, as described by Parten (1932), and cognitive types of play, as outlined by Piaget (1962), in the same group of children at toddler and preschool age. The major hypotheses were that (a) the spontaneous play behaviors observed in the children at toddler and preschool age would follow the sequences described by Parten and Piaget and (b) the complexity of early play, as measured by the combined dimensions, would be predictive of later play complexity.

The subjects were a group of normally developing children who first attended the laboratory toddler program and then the preschool program. The setting was the university school, during the regularly scheduled children's programs. No attempts were made to change the setting or activities; the videotape equipment used was introduced prior to actual recording and was present in the setting on a daily basis, so that it was not a novel element.

The procedures included collecting videotaped samples of the free play of randomly selected focal children. After the instances of each child's play were recorded (i.e., by time sampling at 30-second intervals), the behavior was coded, frequencies of play in each category were tabulated, and percentages of play types were calculated. A complexity score, based on the combined dimensions of play, was also derived. The hypotheses for evidence of developmental trends were supported; however, the social quality dimension, rather than the cognitive dimension, accounted for the predictiveness of the model. That is, the level of social play at toddler age was predictive of the complexity of play at preschool age.

Results showed that when the children were toddler age, solitary (31.2%) and parallel (22.6%) play predominated in the social dimension while practice (53%) was predominant and symbolic was secondary (12.2%) in the cognitive dimension. The most common type of play was solitary practice, with parallel practice a close second. The largest proportion of symbolic play was at the solitary level. At the preschool level, the same children's solitary play decreased (from 31.2% to 16.7%) while their parallel play increased slightly (from 22.6% to 30.6%). Increases in associative and cooperative play were evident, with associative going from 6.5% to 10.9% and cooperative from 1.9% to 9.1%. Practice play decreased (from 53% to 44.2%), while symbolic increased (from 12.2% to 32.3%). Onlooking also increased slightly (from 9.4% to 12.8%).

The Sponseller et al. model can be used by practitioners who wish to observe children at play in child-care centers, schools, hospitals, playgrounds, stores, and other settings. It is suitable for most age ranges, but different categories of play will be the focus of observation depending on the age of the children. The coding instrument can also be used as a diagnostic tool to observe the play of one child (e.g., if a child seems to be having problems becoming engaged in play or seems to be operating at lower levels than age would indicate are appropriate).

Figure 2-1 • Two-Dimension Play Observation Form

	Practice	Symbolic	Games
Onlooking	1	2	3
Solitary	4	5	6
Parallel	7	8	9
Associative	10	11	12
Cooperative	13	14	15

Child _____
Age _____
Date _____
Observer _____

Examples of play coded by cell

Cell

1. **Onlooking-Practice:** Slowly walking through gross motor area, observing children going up and down slide and rocking in boat.
2. **Onlooking-Symbolic:** Observing another child "feeding" popcorn to a puppet.
3. **Onlooking-Games:** Standing, intently watching teacher and two children play Ring-Around-the-Rosy.
4. **Solitary-Practice:** Walking alone on tiptoe over pillows, carpet, tile, up and down stairs.
5. **Solitary-Symbolic:** Making animal puzzle pieces "walk" around and "talk" to each other.
6. **Solitary-Games:** Arranging cars in special order, in line, selecting them according to self-designed rule, moving them in certain sequence so that one will "win."
7. **Parallel-Practice:** Painting with fingers on table beside other children, all of whom are focused on their own play.
8. **Parallel-Symbolic:** Setting table and "feeding" doll in house area, while other children are engaged in similar but separated play.
9. **Parallel-Games:** Running with other children but not racing against them, only with self.
10. **Associative-Practice:** Rolling on pillows with another child, laughing and escalating activity in response to other child's action.
11. **Associative-Symbolic:** Building a "barn" with another child, helping by handing blocks, suggesting how to make the roof, adding to the wall, but also doing some independent building.
12. **Associative-Games:** Playing a "turn-taking" game with another child, such as pulling child in wagon, then sitting in wagon as other child pulls, then pulling child, then being pulled.
13. **Cooperative-Practice:** Throwing ball back and forth to another child for an extended time.
14. **Cooperative-Symbolic:** Engaging in sociodramatic play as "mother" or "daddy" and demonstrating appropriate role actions for extended time period.
15. **Cooperative-Games:** Participating in a game of tag or hiding and finding, following rules for an extended time period.

50

Two cautions must be observed with this model. First, for studies of play in naturally occurring settings, the setting itself may influence the kinds of behaviors observed; systematic variation of materials can clarify the extent to which the play observed is indicative of children's developmental level and the extent to which it is influenced by setting variables. Second, because solitary play has been shown to have different qualities at younger and older age levels, categorization of solitary play into a less mature (i.e., solitary practice/functional) and a more mature (i.e., solitary/constructive) form may be especially important when studying children of later preschool and kindergarten age (Barnes, 1981).

A model that has been used extensively with children 4 to 7 is that of Rubin and colleagues (Rubin et al., 1976, 1978; Rubin, 1985b). This model draws on the categories of cognitive play developed by Smilansky and the Parten social categories. It also includes some non-play categories. The four Smilansky cognitive play categories are: functional, constructive, dramatic, and games with rules. The Parten social categories of solitary and parallel are used, but the model combines the associative and cooperative play categories into one category called "group play." The Rubin observation scale and a summary of play and non-play behaviors to be observed is shown in Figure 2-2.

- ***An experimental model***

Fein (1975) employed the experimental model described here in an investigation of young children's ability to transform objects in their pretend play. Many researchers have applied variations and elaborations of this method of studying pretense to the exploration of the stages of symbolic play (e.g., Bretherton, O'Connell, Shore, & Bates, 1984; Golomb, 1977; Fenson & Ramsay, 1980; O'Connell & Bretherton, 1984). Typically, the procedure of presenting pretense-eliciting objects is combined with various adult facilitation strategies such as modeling and suggesting pretense themes. This type of study is usually conducted in a homelike laboratory setting.

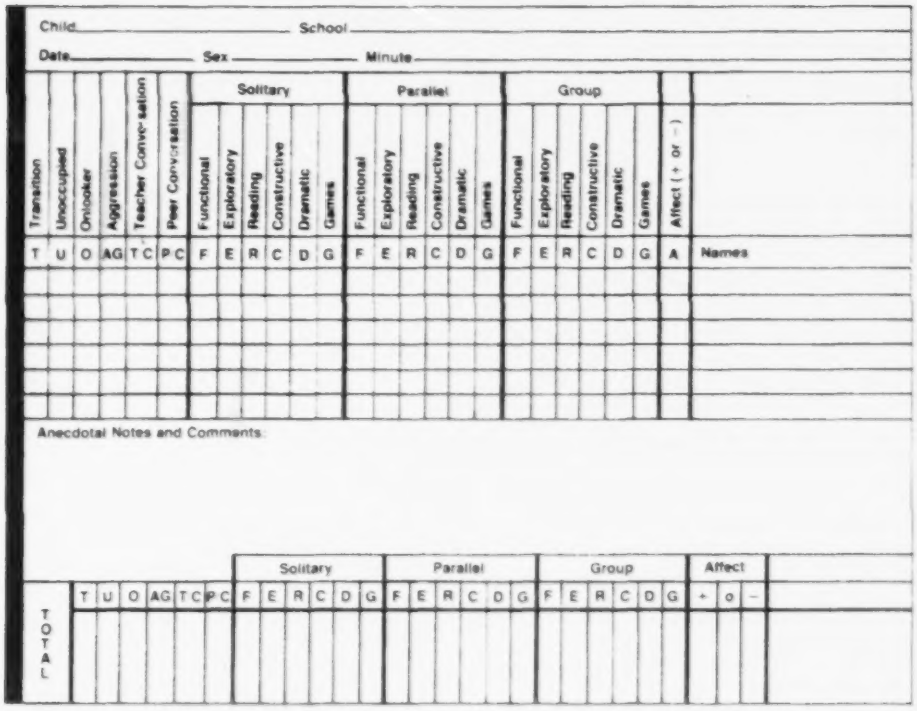
Fein (1975) hypothesized that, within a given relationship between pretend objects and acts, young children's ability to perform transformations in pretend play (i.e., permit one object to be used as if it were another) varies as a function of the number of substitutions required. She predicted that double substitutions would be more difficult for toddlers than single substitutions.

The subjects were children of 22 to 27 months and the setting was a testing laboratory with a one-way window. Two experimenters were involved; one was in the room with the children presenting the objects and actions and one was behind the window scoring responses. (Many similar studies collect data on videotape for later analysis.) The children's mothers sat in the room away from the testing table.

The objects used in the experiment were at two levels of representational realism: (a) a plastic cup and a cup-shaped shell and (b) a realistically detailed plush horse and a metal horse shape. Fein predicted that the more prototypical, or realistic, objects (i.e., cup and plush horse) would be transformed more readily than the less prototypical objects (i.e., cup-shaped shell and metal horse shape).

Procedures included a baseline trial period in which all children were presented with

Figure 2-2 • The Play Observation Scale Coding Sheet



Behavior	*Goal or Intent*		
Solitary	To engage in an activity entirely alone, usually more than three feet away from other children.	**Exploratory**	To seek sensory information.
		Reading	To receive cognitive information from books, records, etc.
Parallel	To engage in an activity beside (but not with) other children usually 3 ft. or less away.	**Unoccupied**	There is a complete lack of goal or focus during this behavior.
		Onlooker	To watch (or listen to) the behaviors and activities of other children.
Group	To engage in an activity with another child or children, in which the cognitive goal or purpose is shared among all.	**Transition**	To prepare for, set out, or tidy up an activity, or to move from one activity to another.
Functional	To experience sensory stimulation through simple, repetitive muscular movements.	**Conversation**	To communicate verbally with others.
Constructive	To create or construct something.	**Aggression**	To express displeasure, anger, disapproval through physical means.
Dramatic	To dramatize life situations or bring life to an inanimate object.		
Games w/ rules	To engage in a competitive game-type activity following pre-established rules and limits.	**Rough-and-tumble**	Playful physical activity.

three conditions and given 10 seconds to respond. First, the realistic objects were displayed; then the experimenter modeled pretense by using the realistic cup to pretend to feed the realistic horse. Finally, the experimenter asked the child to pretend the realistic horse was hungry and to feed it. This baseline period was meant to ensure that the children understood pretending. Those children who did not were excluded from the study.

The substitution trials were then conducted, following the same three steps: (a) display, (b) modeling, (c) suggestion; but the children were randomly assigned to different object substitution conditions. Children were asked to pretend either with (a) a single substitution of the shell with the plush horse (b) a single substitution of the metal horse shape with the cup; or (c) a double substitution of the cup-shaped shell with the metal horse shape.

Results supported Fein's hypothesis. For the cup-only substitution, 79% of the children pretended; for the horse-only, 61% pretended; but for the metal horse shape and cup-shaped shell (i.e., the double substitution), only 33% pretended. Even when the adult modeled pretending, the children pretended less in the condition requiring two transformations. Fein concluded that children's ability to pretend varies as the play objects vary and suggested that future research explore how transformational ability changes with age and environmental conditions. The numerous subsequent studies of pretense have employed similar experimental models to explore these differences in children from toddler through kindergarten age.

Because home and school settings usually have objects that are at varied levels of realism, this model can be readily used by practitioners to explore object transformations in the pretend play of children from age 2 to 6. Bretherton (1984b) provides a number of adaptations of this model that are appropriate for exploring specific aspects of pretense. These models can be utilized to assess the pretend play abilities of mentally retarded and learning disabled children as well. Researchers must keep two caveats in mind: (a) The prototypical level (i.e., the level of realism) of the objects must be reliably categorized and (b) the adult must follow standard procedures (i.e., the same words and actions for each child), so that extraneous clues or prompts do not inadvertently influence children's responses.

- ***A self-report/performance model***

Interview, questionnaire, and testing methods are useful primarily with older children because they can provide reliable information at that age level. Some studies supplement or replace self-report measures with parental report. Self-report performance methods were developed early in this century. Coury and Wolfgang (1984) describe the three major self-report/performance methods: (a) written checklists of play preference items (e.g., Terman, 1926); (b) forced dichotomous choices between toy photographs or objects (e.g., Vance & McCall, 1934); and (c) photo cards or toys that must be ranked in order (e.g., Nadelman, 1970, 1974). Coury and Wolfgang recommend that researchers make sure their survey items reflect contemporary play activities and toys.

The model described here is that of Rosenberg and Sutton-Smith (1960), who adapted

their play categories from the earlier lists of Terman (1926) and Lehman and Witty (1927). After initially collecting ideas from children and comparing them to the early lists, the researchers selected 180 play activity items. The final list included (a) games with formal rules, such as tag or baseball; (b) general play activities, such as climbing or collecting; and (c) dramatic play activities, such as cowboys or house.

The objective of the study was to compare males' and females' preferred play activities. Subjects were children in fourth, fifth, and sixth grade from five midwestern townships. Procedures involved administering the list to the children and asking them to find the play activities in which they had engaged and to indicate whether they like or disliked that type of play by marking L or D. After children had responded, the 115 items that were preferred by at least 50% of the children were used in the analysis.

The researchers reported that girls had selected many more activities than boys and that more items differentiated their play. That is, many of the girls' selections were not chosen by boys, but some of the boys' selections were also chosen by girls. Forty activities differentiated girls' play; only eighteen activities differentiated boys' play. Examples of preferences that differentiated between boys and girls are as follows:

1. Boys preferred active pretense activities such as bandits, bows and arrows, building forts, cars, cops and robbers. They also enjoyed structured games such as football and marbles and quiet activities such as making model airplanes and using tools.
2. Girls preferred active play such as cartwheels, seesaw, dancing, and pretend play such as dress-up, dolls, store, and school. Girls also included many active traditional games in their list of preferences, such as blindman's buff, crack the whip, farmer in the dell, fox and geese, hopscotch, jump rope, red rover, and stoop tag. They enjoyed quiet games such as clue, pick up sticks, and jacks.

When Rosenberg and Sutton-Smith (1960) compared their list to the early Terman (1926) list, they found that only 8 of 27 items that had differentiated boys' play remained differentiated in their study. They concluded that girls' interests have broadened but that boys' interests have narrowed. Even games such as baseball and basketball were named often enough by girls that they no longer differentiated between boys and girls. The researchers state that their results point to a broadening of female role perception but a narrowing male role perception.

With this method, practitioners can explore the play of children of 5 to 12 years who are able to respond to questions, checklists, or other rank-ordering directions. Some self-report methods (i.e., picking toy photos) may be used with children younger than elementary age. The methods can also be combined with observational data collection methods. Researchers must be careful to (1) ensure that the response items are representative of children's present-day interests; and (b) make directions clear so that all children follow the procedures correctly. Coury and Wolfgang (1984) also suggest organizing the categories according to a theoretical perspective (e.g., using categories of a particular theorist) so that the results can be explained in terms of the theory.

Some Research Questions Needing Further Study

A number of researchers have identified questions that need further study. These questions can serve as a guide for future directions in play research:

1. For those who have been studying exploratory play, the major question is still that of determining where the line between play and exploration should be drawn. McGhee (1984) states that answering the question of whether exploratory acts can be referred to as play is the "major unresolved issue" in exploratory play research (p. 223). Other questions are related to the contexts in which exploration and exploratory play are exhibited (e.g., the different social influences of home and group settings). Questions about object properties and physical settings that elicit exploratory play continue to be of interest and methods to explore these questions are becoming increasingly sophisticated.
2. According to McCune-Nicolich and Fenson (1984), the major questions for those studying the development of pretense are: (a) what are the experiences or internal developmental factors that account for specific changes in pretense?, (b) what are the interrelationships among the structure of play stages (e.g., decentration, integration, decontextualization) and the processes of transition of higher stages?, and (c) what are the interrelationships among trends in pretense development and other developmental trends (e.g., language or social and emotional development)? An important question is the role of language in enhancing pretense development. There is currently little focus on the symbolic play of the elementary-age child; methods for exploring the nature and developmental trends of symbolic play after early childhood should be of interest to some researchers. Cross-cultural studies are also needed.
3. Researchers on the games of middle childhood are particularly concerned with answering questions on how present sociocultural forces and technological advances affect game development. There are conflicting viewpoints regarding whether the number of games played, the time spent in play, and the content of game play is changing more rapidly and substantively now than it did in the past (e.g., Roberts, 1980). Another point of controversy mentioned by Roberts is whether adults should teach or try to facilitate the playing of traditional or innovative games. The effects of adult involvement on middle childhood game playing have not been systematically studied. Replications of historical and cross-cultural research on game pervasiveness and content are sparse, as are observational and experimental research approaches for studying the game playing of the elementary-age child. These are questions that might be productively studied. Cross-cultural studies of games have become a topic of increasing research interest; these will continue to be a focus of ethnographic research.
4. In a summary of the views of several leading researchers on play, Sutton-Smith (1979b) identifies five major play research issues: (a) antecedents of play (i.e., how it arises and develops); (b) transitions into play (e.g., boundary behaviors, play frames); (c) play structures (e.g., routines, formats, stereotypes, games, flow); (d)

developmental changes over small time spans (i.e., synchronic) and long time spans (i.e., diachronic); and (e) consequences of play (e.g., for social, cognitive, or language development).

5. Future directions identified by Rubin et al. (1983) include the study of play as an assessment tool and its relationship to language, cognition, and socialization. Improvement in and more attention to studies of play in special needs groups have also been recommended. For example, more study is needed of the play of children who are disabled (Quinn & Rubin, 1984), culturally different (Schwartzman, 1984), and physically or environmentally stressed (Cicchetti, 1985). Additional study of the potential of training to enhance play development is also needed (Saltz & Brodie, 1982).

Conclusion

It is evident that research on play is thriving and that many directions for study are open to the researcher. The planning of research requires decision making on theoretical questions, on research definitions, and on research methodology. There are guidelines for naturalistic, experimental, and self-report/performance methods; many studies are available to serve as models for research. Practitioners can draw upon the play research literature not only for ideas for planning learning activities for children, but also for suggestions about how they can be better observers and recorders of children's play.

Play research has increased greatly during the past 25 years, and in the process has generated enough additional questions to keep researchers busy for the next 25 years. As the body of research has increased, the methods employed and the hypotheses tested have become more sophisticated. Rubin et al. (1983) summarize the state of research:

> There remains a plethora of unanswered questions concerning the study of play. However, after a dearth of research in the area, we appear to have turned the corner. Now, perhaps researchers can derive as much pleasure from their serious investigative efforts as children do from engaging in this mutual topic of interest—play! (p. 759)

According to Mead (1934), play helps children to make their lives meaningful. Play research can give educators and other practitioners information they need to develop optimum learning conditions for children. Ultimately, the significance of play research relates to its perceived usefulness for understanding children's development and for planning environments that facilitate that development through the medium of play. Play research also has meaning for adults, however, and indeed for the society as a whole, because efforts to unravel some of the mystery surrounding "that clever fool, play" (Vandenberg, 1982, p. 15) can enrich adults' as well as children's lives.

Ultimately, the significance of play research relates to its perceived usefulness for understanding children's development and for planning environments that facilitate that development through the medium of play.

Suggestions for Further Reading

Brown, F. L., Amos, J. R., & Mink, O. G. (1975). *Statistical concepts: A basic program.* New York: Harper & Row. Presents a programmed instruction approach to understanding the basics of descriptive and inferential statistics that can be completed in about five to eight hours of study time. Includes practical formulas for statistical analyses typically employed in studies designed by practitioners.

Coury, K., & Wolfgang, C. (1984). An overview of the measurement methods of toy and play preference studies. *Early Child Development and Care, 14*(3-4), 217-232. Critiques the types of play preference instruments and methods developed during the past 60 years; includes samples of instruments and descriptions of methods.

Fein, G. G. (1975). A transformational analysis of pretending. *Developmental Psychology, 11,* 291-296. Reports method and findings of the study that served as an example of the experimental model in this chapter.

Gay, L. R. (1976). *Educational research: Competencies for analysis and application.* Columbus, OH: Charles E. Merrill. Gives a basic introduction to the major principles of educational research, including problem definition, research plan development, sample and instrument selection, research procedure implementation, data analysis and interpretation, and results presentation. Writing style is nonthreatening, clear, and even enjoyable to read.

Pellegrini, A. D. (1984). Training teachers to assess children's play. *Journal of Education for Teaching, 10*(3), 233-241. Explains one way that the Rubin (1985) scale has been used.

Rosenberg, B. G., & Sutton-Smith, B. (1960). A revised conception of masculine-feminine differences in play activities. *Journal of Genetic Psychology, 96,* 165-170. Describes study that served as an example of the self-report questionnaire model in this chapter.

Rubin, K. H. (1985). *The play observation scale (POS)* (rev. ed.). Waterloo, Ontario: University of Waterloo. Contains complete protocol for using the Rubin observation scale; includes explanation of scale development, definitions, and a bibliography.

Rubin, K. H., Maioni, T. L., & Hornung, M. (1976). Free play behaviors in middle and lower class preschoolers: Parten and Piaget revisited. *Child Development, 47,* 414-419. Describes one of the Rubin et al. observational studies, with Smilansky categories derived from the work of Piaget and Parten.

Sponseller, D. B., & Jaworski, A. (1979). *Social and cognitive complexity in young children's play: A longitudinal analysis.* Paper presented at the meeting of the American Educational Research Association, San Francisco. Presents detailed results of the naturalistic observation study described in this chapter.

Sponseller, D. B., & Lowry, M. (1974). Designing a play environment for toddlers. In D. B. Sponseller (Ed.), *Play as a learning medium* (pp. 81-106). Washington, DC: National Association for the Education of Young Children. Describes the conceptual model used in this chapter and gives results of the researchers' pilot study employing the model.

Essay: Some "Good News" and Some "Not So Good News" About Dramatic Play

Kenneth H. Rubin

Play is the veritable "stuff" of childhood. It fills children's hours with joy, interest, and newfound creative experiences. Play serves parents with non-guilt-ridden "leave-time"; to be told, "Go play" is a reward not a punishment.

Now it seems that we all know what play is... it's fun, knowledge laden, non-punitive. But, for a phenomenon so easily recognized, it strikes me as being so surprising that play has a long-standing reputation of being impossible to define. Indeed, in our lengthy review of the literature of children's play written for the most recent edition of *Handbook of Child Psychology* (1983), Greta Fein, Brian Vandenberg, and I spend countless words and pages dealing with the difficulties of defining play.

In the following paragraphs, I will endeavor to provide a relatively brief definition of play. I will then describe some recent findings, freshly derived from The Waterloo Longitudinal Project, suggesting that all is not well for play advocates. Play, as defined herein, will be shown to be associated with positive childhood characteristics only in some social settings and only at certain ages.

Play Defined

The shortest and perhaps most reasonable definition of play is simply, "it's just pretend." Ask any two adults (i.e., preferably adults who are familiar with children or who have good memories of their own childhood) to visit a preschool, a playground, or a neighborhood backyard. Request these adults to note any incidence of "just pretend."

There is really no need to supply your observers with lengthy observation training sessions. My prediction is that "just pretend" is sufficient information to produce readily identifiable and reliable codings of "play." Matthews and Matthews (1982) have argued convincingly for the paradigm case approach to the study of play. But as we peek into the infrastructure of play, we discover that there is much more to it than "just pretend." The critical definitional characteristics are as follows:

1. Play is intrinsically motivated; it occurs because the child is moved to pursue a given activity, not because it is forced on him or her or reinforced by others.
2. Play is its own "means" and "ends"; it is a behavior that is not goal-oriented. If any goal exists, it is simply to enjoy the activity and have fun.
3. Play is non-rule-governed. There is no set number of guidelines passed on from generation to generation or from child to child regarding the rules for this or that type of play. In this regard, play is distinguished from games that are rule governed, competitive, and often not enjoyable!
4. In play, children impose their own meanings on objects. They are past the "stage" of discovering what a given object does (i.e., they are finished exploring object properties). During play, children are fueled by the question, "What is it that I can do with these things?" and not by the question, "What's this object all about?"
5. Play involves some element of nonliterality. It involves, as Fein (1985b) puts it, "denotative license," in that children invent new meanings for real world objects and activities. Objects are transformed and decontextualized (e.g., a piece of cardboard becomes a "magic mirror"), and people assume nonliteral identities (e.g., 4-year-old Jason becomes Prince Adam, holder of the "magic mirror"). In short, play involves pretense.

To summarize, play is an enjoyable, intrinsically motivated behavior that is non-rule-governed, non-goal-oriented, and "just pretend." Rubin et al. (1983) give a more refined version of this definition.

The "Good News" About Play

Given these characteristics of play, it seems reasonable to ask, "What's so good about it?" To those who are serious students of play (a contradiction of terms), the answers seem obvious. In infancy and toddlerhood, when objects are substituted for the real things (e.g., a stuffed Paddington bear is "baby"; an empty slipper is "Paddington's glass of milk") or when activities are transformed and decontextualized (e.g., the 4-year-old protagonist with clenched teeth is playing the role of Daddy when he's angry), there is more to the behavior than "it's just pretend." Pretense designates mental representation. It is a marker of cognitive maturation; things can substitute for other things and activities don't have to be taken literally. Furthermore, play as representation indicates that children recognize and remember things and people not in present view, and they can act out these recognitions in play. So just as language and words are taken as representational substitutes for the real things, so too is play. Interestingly, language and the onset of representational (i.e.,

pretend) play appear to arrive in the human repertoire at approximately the same time (e.g., McCune, 1985). The good news, then, is that in infancy and toddlerhood, pretend is a marker of cognitive (i.e., representational) development and the enactment of play allows the practice of representational skills.

More good news: In the preschool and kindergarten years, pretend becomes more sociable. Children begin to share the nonliteral meanings of their pretend worlds with parents, siblings, and perhaps most important, peers. They can create or borrow new roles for themselves (e.g., "I'll be He-Man, you're Skeletor, she's She-Ra"). They can deliberate and negotiate over who will play these roles and at what times (e.g., "O.K., I'll be Skeletor this time, but next time I get to be She-Ra"). Children can plan numerous creative scenarios for their social-fantasy activities (e.g., "Remember, She-Ra only rescues He Man if he's in real danger; otherwise, it'll be two against one and Skeletor will always lose!").

The bottom line is that sociodramatic play allows young children to create and adopt new roles and changeable rules. It allows them to practice persuasion, negotiation, cooperation, and even assertion/defense (e.g., in rough-and-tumble activities), all within a nonliteral framework. As such, sociodramatic play has been viewed by many psychologists as a means by which children learn to communicate, negotiate, create, problem-solve, and understand social roles, rules, and perspectives.

The bottom line is that sociodramatic play allows young children to create and adopt new roles and changeable rules. It allows them to practice persuasion, negotiation, cooperation, and even assertion/defense.

So far the news is all good. Indeed, the extant literature indicates that young children who engage in high frequencies of sociodramatic play are (a) more popular among their peers, (b) more intelligent, (c) more creative, and (d) better social-cognizers and perspective takers than their age mates, who are less inclined to participate in social-pretense (see Rubin et al., 1983, for a relevant review). What then could possibly be wrong with play?

Some "Not So Good" News About Play

Given all the good news, it is important to reveal some new findings that suggest that when play as defined above is found in high frequencies in certain social contexts, or when it is found at certain ages, it may warrant the raising of a red warning flag. It may be a convenient index of "something not quite right."

First, with regard to the social context, it is interesting to note that from ages 3 to 5, classroom or playground pretend occurs mainly when children are interacting with others (Rubin et al., 1983). In our research, we have discovered that

preschoolers and kindergartners who engage in relatively high frequencies of classroom or outdoor solitary pretense and in pretense near, but not with, others (i.e., parallel-pretense), are disliked by peers and are perceived by teachers as socially incompetent (Rubin, 1982b). Furthermore, these nonsocial pretenders are less able to understand other people's perspectives and they are less able to produce many solutions to common interpersonal dilemmas (e.g., obtaining a desired toy from a peer) than their more sociable pretending counterparts (Rubin, 1985a). Finally, our data indicate that the frequent display of nonsocial classroom pretense in kindergarten is predictive of social skills deficits when children are in grade two.

Taken together, these data suggest that high frequencies of nonsocial pretense, when children are in formal group settings (i.e., not when they are home alone in their rooms), reflect a lag in the development of social skills. The implication is that not all forms of dramatic play are "good for" young children. Sociodramatic play is clearly productive; nonsocial pretense, in group settings, is far less beneficial and perhaps reflects some developmental lag.

The other news about dramatic play concerns the age at which it is exhibited. In our recent studies concerning the development of social skills and peer relationships, we have found that the frequent display of sociodramatic play becomes an increasingly less important marker of competence with age. Thus, for example, in grade two, the frequent display of sociodramatic play in group settings does not correlate significantly with teacher and peer assessments of social skills and positive peer relationships. By grade four, children who spend much of their time in sociodramatic play are actually disliked by peers and rated as aggressive by peers and teachers. Furthermore, they are more likely to display immature social behaviors and play patterns when in groups (e.g., more sensorimotor play and more solitary play). The playlike behavior in grade two, and especially in grade four, that appears to take the place of sociodramatic activity as a marker of social competence is group games with rules. This type of activity involves the simultaneous understanding of rules, cooperation, competition, turn taking, and perspective taking.

To summarize, with development, children's play becomes increasingly symbolic and sociable. The 2- and 3-year-old who spends a good deal of time pretending while alone or near others is demonstrating maturity and cognitive competence. From ages 4 through 6, children who share their pretend world with their peers are viewed as socially and cognitively skilled and creative. The nonsocial pretender appears to evidence both social and cognitive difficulties. Finally, during the concrete operational years (i.e., 6 or 7 through 10 or 11, social and cognitive prowess is associated not with sociodramatic play, but with formalized, rule-governed cooperative/

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competitive games. Indeed, the frequent display of social pretense at age 10 is as strong a marker of immaturity and developmental lag as nonsocial pretense at ages 4 and 5.

The good news? Play appears to serve children well through the early years of childhood. The bad news? Childhood is fleeting; by the time children reach the mid-elementary school years social pretense is not enough. Children are expected to exhibit all the real world competencies representative of "success" in middle class North America. They must be able to attend to and abide by rules, they must willingly and competently take turns, and they must demonstrate a strong working knowledge of the double-edged concept of cooperation/competition. To be a "creative game player" (e.g., "four strikes and you're out; you get one turn, I get three") is only acceptable until such time that the concept of "game" is understood. After that time (i.e., in concrete operations), the bending of rules and the abandonment of the real world for the world of fantasy becomes increasingly associated with peer rejection and the lack of social skills. The really bad news then is that the glorious play worlds of Care Bears, He-Man, Princess Leia, and Optimus Prime appear to crumble within the first 10 years of childhood. The really good news is that the skills developed in their social fantasy worlds probably help children immeasurably to become competent game players and citizens in their real worlds of North American society.

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Essay: Imaginative Play and Human Development: Schemas, Scripts, and Possibilities

Jerome L. Singer and Dorothy G. Singer

Play Viewed from a Cognitive-Affective Perspective

We're presently in an era, reflecting no doubt a scientific "paradigm change," in which our conception of human beings presents them as information-processing creatures, seeking continuously to organize and to give meaning to stimuli from the physical and social environment, from their own memory store or from the ongoing machinery of their bodies, forming such information into organized meaning structures (Kreitler & Kreitler, 1976; Singer, 1973, 1984).

Indeed, following upon the great insights of Silvan Tomkins (1962-1963) and the supportive empirical research of Izard, Ekman, Schwartz, and others (Singer, 1984), we today view humans as individuals whose differentiated emotional response patterns are closely intertwined with the novelty, complexity, and other structural properties of the information they confront from moment to moment. A major task of childhood is the organization of the complex and varied stimuli presented to the infant or toddler into structures that can provide anticipatory sets and expectations as each new environmental situation is confronted.

Faced with new situations of information that cannot be matched against previously established schemas, the child will at first be startled and even frightened. As the child begins to assimilate (Piaget, 1962) new material with established schemas, the emotion may change from fear to interest and even excitement, and further exploration may occur. As matches are made and well assimilated, the child may experience the emotion of joy (Singer, 1973; Tomkins, 1962-1963).

From this perspective, we can understand symbolic or imaginative play in early childhood as a major way in which the child learns to develop new schemas and script structures that can become the basis for a continuous exploratory and adaptive interaction with the changing environment. The child's attempt to assimilate the complex novel material, whether from the physical or from the social environment, is extremely difficult and complex because the child approaches

each situation with such a limited repertory of preestablished schemas or action-oriented scripts. It is at this juncture that we probably see beginnings of symbolic and fantasy or make-believe processes (Singer & Revenson, 1978).

The efforts at imitation of adult behaviors by the child are impeded on a number of counts: There is inadequate verbal capacity, as yet insufficiently differentiated motor skill, and, in addition, only a very limited experiential base of comprehending the nature of the adult action or of the large objects that move around (e.g., in one's environment in a public street). Children can in effect control these novel and strange experiences by creating a miniature environment in which they attempt to assimilate their previously imitated actions or overheard sounds or phrases by reducing them to the manageable proportions of floor games with blocks or toys. By moving blocks up and down and imitating the sound effects of cars or trucks or by introducing snatches of adult phrases that are often not well understood, the child rehearses and experiments in the formation of new schemas. To the extent that adults or other older children occasionally offer corrective suggestions for the naturally faulty assimilations that constitute the "cuteness" of children's play, the child may gradually correct many of the schemas-in-formation and emerge with reasonably socialized private schemas and action scripts that will function effectively in new social situations.

Fears, Frightening Images, and the Origins of Transference

One must of course understand play as a form of schema formation in relation to the different age levels and the cognitive capacities or environmental demands at the various stages of development. For the preschool period, and even for the somewhat later phases of childhood, there are many events and experiences particularly difficult to assimilate and to match with already established schemas. Consider the situation of the young child lying in bed at night and seeing the shifting play of shadows on the wall. Perhaps flashes of lights from passing automobiles cast different patterns on the wall. There are many noises one discerns at night that take on figural properties compared with the normal background din of the daytime. The difficulties the child faces in trying to assimilate these into an established schema certainly must arouse negative effects such as fear. In addition, in the quietness of presleep children experience an upsurge of their own memories and fantasies and awareness of unfulfilled plans or partially assimilated material (i.e., what Freud has termed the *day residue),* which we might call simply *unfinished business*—the various unresolved issues or incompletely assimilated materials of the child's day-to-day life. Klinger (1970) has elaborated on the notion of the "current concerns" that are the major characteristics of adults' as well as children's dreams and fantasies and the ongoing stream of thoughts. Breger,

Hunter, and Cane (1971) have called attention to the role of unresolved stress in generating dream and fantasy content.

Children may make efforts to form schemas based on what they already have available as organized structures. Such efforts include remembering tales of faraway places, religious and supernatural plots that adults have already made available to the child. Nowadays, new thoughts are related to the considerable material based on television and film. In an effort to form these viewed experiences into play structures and make-believe, the child may develop sets of relatively private "mythologies," schemas or scripts about the unknown or novel in interpersonal relations that are not necessarily subject to later correction because of the private way in which they have been developed. One might argue that it is this type of formation, growing out of the child's efforts at play, that builds at least some of the basis for what in adult life can be seen as the transference phenomenon. That is, the attribution to adults in ordinary social situations of expectations and beliefs derived from childhood or early life experiences (Singer, 1985).

The complexity of symbolism available to us today is built into our language and our communication media. One need really make no assumptions of a genetic coding or archetype to explain the multilayered symbolism that emerges in psychotherapy and mental imagery techniques. With advertising writers actively providing us with phallic automobiles and symbolic mistresses perched within them, what need do we have of the notion of racial unconscious to account for metaphors in our dreams or fantasies? Symbolism pervades our lives as part of our cultural heritage and as part of the very metaphorical characteristics that human beings lend to their schemas in social settings. That these should emerge from the child's efforts at creating manageable play forms should not be so surprising. Thus, the make-believe play of the child, while certainly essentially an adaptive function and critical for the formation of schemas about the environment, also creates the possibility, particularly in the earlier years, for the formation of expectancies about human interaction.

The Role of Parents as Mediators

Our own recent research has focused on the special ways in which parents or other adult caregivers in the family play a critical role in mediating the complexity of the child's physical and social environment (Desmond, Singer, Singer, Calam, & Colimore, 1985; Singer & Singer, 1984; Singer & Singer, 1985). There is considerable evidence that children's ability to use their own imaginative skills and make-believe for effective assimilation functions and schema formations depends in part on the extent to which adults interact with them. Such interaction may be evident when adults label aspects of the environment, and/or tell children stories so

that the youngsters can learn to frame complex events within organized structures. By tolerating imaginative play and overt verbalization by the preschooler, parents also foster self-development of these skills.

In our own research we have found that a score developed from parent questionnaires, which we have called *discussion versus prescription/discipline*, identifies those parents who engage in labeling, explaining, and storytelling. The children of parents who score higher on this dimension tend to be more capable of self-control in waiting situations, show less overt aggressive behavior, show better general knowledge assimilation from the environment, and tend to be less susceptible to some of the more negative effects of heavy television viewing. Our studies also indicate that heavy viewing of television by children can preclude the opportunities for practicing make-believe play that give the child an independent ability to organize and control new information and form it into schemas. Instead, heavy viewers tend simply to become dependent on television and seem to show less general ability to organize and comprehend new material, including plots from television plays (Desmond et al., 1985; Singer & Singer, 1983). Indeed, we have evidence that children who engage in extensive viewing of television at the preschool and early school-age years show less imaginativeness in their play during the following years as measured by block play, interviews with the children, and their responses to projective techniques (Singer, Singer, & Rapaczynski, 1984).

In summary, we propose that imaginative play functions to enhance the child's need for organizing environmental complexity into meaningful schemas and scripts about possible future actions. It also aids children in experiencing control over the environment and in expressing more positive affective responses. In make-believe play, children are exposed to the world of the possible, a major dimension of human experience; but children confront this world on their own terms.

Too often, adults' neglect and failure to engage the child in storytelling or to read books to the child, as well as parents' occasional direct humiliation of the child's efforts at imagination, may hinder the natural evolution of the child's use of make-believe for schema formation. Our data show again and again that constructive parental interaction, as well as ample opportunities for practice by the child of make-believe games, leads not only to improved cognitive performance by the child, but also to greater control over aggression and restlessness and to evidence of the positive emotions of interest-excitement and joy.

Essay: Reality and Fantasy in Make-Believe Play

Inge Bretherton

"I a daddy," says a 2-year-old to his older sibling. Admittedly, the 2-year-old's understanding of the father role is rudimentary, but it is nonetheless astonishing that a toddler can even entertain the idea of being a daddy. By adopting a variety of roles and acting out role-appropriate actions with a variety of realistic or imaginary props, young children create alternative realities through play. Three important abilities are involved: the ability to step in and out of multiple roles or perspectives, the ability to playfully transform reality or engage in counterfactual thinking, and the ability to play with the play frame itself. Early precursors of these abilities emerge in babyhood, but they come truly into their own during the preschool years.

In order to reenact playful transformations of reality with other children a number of organizational skills are required. Players must make sure that their play actions are taken as nonliteral, but much more is involved than merely conveying the message "This is play" (Bateson, 1956). Once children have decided to enter the play frame, they have to become co-writers, co-directors, co-actors, and vicarious actors all rolled into one, without getting confused about which of these roles they or a co-player are momentarily adopting. Children must organize the theme, locale, role distribution, and props, as well as actually enact the agreed upon story. To do so successfully, they must be able to switch roles rapidly, because the creation of make-believe plots proceeds on an invent-as-you-go principle: Negotiations about the plot alternate with acting it out. As Holly Giffin (1984) has pointed out, it is often not at all obvious that plot-planning is going on. A player who explains that he is dishing out "barbecue" to co-players sitting at the "picnic table" is sharing information about plot construction as well as acting out the role of father. At a real world picnic, it would usually not be necessary to tell family members what was being served. Director-actor role switching is more obvious when one co-player prompts another about what to say next by dropping the acting voice and whispering: "You don't say it like that, you say . . ." In addition to switching back and forth from directing to acting, players must also coordinate their enactment of complementary character roles (playing

the mommy role has to be integrated with the co-player's rendering of the daddy role). Sometimes a vicarious role is added as well (talking for the "baby"). Kate Garvey (1977a) writes about a 39-month-old girl who plays the role of mother to her baby doll, the role of baby for the doll, and the role of wife to her 33-month-old husband. To cap it all, she prompts husband on how to act the father role. Because the plots tend to be quite simple, the complex conceptual juggling of roles in make-believe play is often hardly noticed by adult onlookers.

A second development concerns transformations of everyday reality. Infants' initial pretense consists of reenacting real world event schemas (e.g., drinking from cups, sleeping on pillows) outside the normal context. Later, playful and sometimes fantastic transformations of reality become more and more prominent. First, young children play with who they are, taking on the feelings, mannerisms, behaviors, and appearance of another person or of an animal. In performing the parent role, a child can give the orders he or she normally has to obey. By reenacting scary events or turning them around, a child can playfully master negative feelings—becoming the hero instead of the victim. In addition to transformations of social and emotional reality, a child can alter the natural laws of time, space, and causality. If some part of the plot is not very interesting and takes too long, a child can magically contract time and space by saying "drive, drive, drive," and speed up arrival at the desired destination. If a child doesn't want to spend hours at the stove, because serving is more interesting, he can say "cooky, cooky, cooky" and the meal is done. By telling other players "You can't see me," a child can make herself or himself invisible, and in dramatically jumping off a one-foot tree stump to simulate space flight, a child can defy the laws of gravity. Likewise, players who have been shot can miraculously be brought back to life by fiat or with "special medicine," undoing the laws of causality. All this is possible because children have built up shared understandings about the real world that all participants can jointly draw on and then jointly agree to transform.

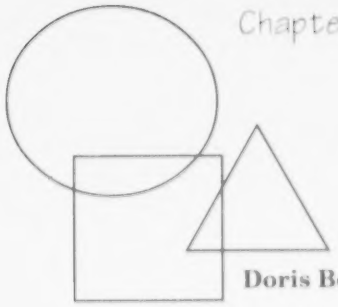
Third, preschoolers begin to play with the play frame itself. They interweave, blur, and confuse the distinction between what is play and what is reality—the distinction between map and territory (Bateson, 1955). Metacommunication serves to inform participants whether someone is performing within the acting frame, the directing frame, or the real world frame.

I would like to suggest here that if we must look at the future implications of pretend play in childhood, it may be more profitable to think of it as the hallmark of an emerging artistic and literary ability.

But astonishingly, almost as soon as the map-territory distinction is understood and skillfully used, children begin to toy with it. A little boy, holding up a small matchbox car to mother, tells her that it's burning up, that it's a "real fire." He uses the word "real" to intensify the illusion of pretense. Another way in which map and territory are intertwined is by incorporating real world events into the ongoing play story: a child accidentally falls over and instead of dealing with the mishap as an event outside the play frame, the players treat it as an accident within the story, requiring ambulance and hospitalization (Wolf & Pusch, 1985). Similarly, antagonisms that may reflect real world feelings between co-players are sometimes surreptitiously incorporated into the plot. One child gleefully taunts another by saying, "I stealed your cake," to which the other retorts pointedly, "It's not a cake anymore." I have observed such undercover sparring between a parent and child, too. Mother, returning into the playroom after a brief absence, observes her 4-year-old daughter turning the steering wheel of a toy dashboard and remarks, "Oh, you're a driver." Daughter, who had been angry at mother's departure, retorts haughtily, "I'm not a driver, I'm a queen," to which mother in turn replies offhandedly and contemptuously, "Queens don't drive; they have a chauffeur." Blurring of map and territory also occurs when roles are allotted to players. Popular children manage to obtain the desirable roles of mommy, daddy, or doctor, while unpopular children may have to content themselves playing the pets (Schwartzman, 1978).

Steiner (1975), a well-known linguist, wrote that "ours is the ability to gainsay and unsay the world, to image and speak it otherwise" (p. 218). Children use this ability in joint play with others, or alone with small figures; they do it just for fun, to come to terms with and master difficult, anxiety-provoking emotional events, and sometimes to get their own back at someone. But they also use it to make serious plans, consider alternative courses of action, and to communicate about these with others. Because the same propensities are used literally and nonliterally, there has been a tendency to regard pretend play as practice or pre-exercise of serious cognitive and social functions rather than something of interest and value in its own right. This leads, as Brian Sutton-Smith (1984) has pointed out, to a sanitized view of make-believe play.

I would like to suggest here that if we must look at the future implications of pretend play in childhood, it may be more profitable to think of it as the hallmark of an emerging artistic and literary ability. To do so does justice to the expressive spirit of make-believe without trying to turn it into something it is not. Such an approach could also provide the impetus for studying the developing artistic function in young children, an important topic about which we are far too ignorant.



Chapter 3

Stages of Play Development

Doris Bergen

In every culture and in every time, children have played. Since the early 1800s theorists from a multitude of disciplines have attempted to answer questions of why play occurs and what functions it serves for human beings and their societies. The information that has been collected in the last few decades on how play develops and what environmental conditions promote, delay, or change its developmental course has begun to provide a picture of the universal stages of play development. This research also indicates that individual and cultural differences may affect the timing of onset, the extent, and the varieties of play development observed.

This chapter gives an overview of the stages of play development from infancy through middle childhood as they have been reported by researchers and theorists who have used a variety of taxonomies, observational methods, and analytical models. The waxing and waning of various stages and the types of play observed at each stage are described and trends in play development are outlined. Characteristics of play at later life periods are briefly discussed in order to provide a life perspective on play development. Individual differences that affect expression of these stages of play and cultural factors that may influence the timing, quantity, or quality of play development are also reported.

Play as a Developmental Phenomenon

According to Rubin (1982a), the idea that play develops in orderly stages is rooted in the qualitative categorizations of types of play that were proposed by early theorists. For example, Schiller (1875), Spencer (1873), Groos (1901), and Buhler (1935) all described ways that play could be organized into stages. Hall's (1920) theory of recapitulation, which linked the changes over time in types of play children exhibit to the history of the human species, also gave support to a developmental view of play.

In the 1930s Parten's examination of social development in preschool children, which outlined a taxonomy of social play levels, made educators aware that there were stages of social play development. Her classification scheme (Parten, 1932, 1933) has been used in many studies of social play. Piaget (1962), who carefully observed the play of his own children, was very influential in initiating present interest in play as a developmental phenomenon. His research led him to identify a sequence of play stages that has provided a framework for much of the current research on play development.

As study of the universal stages of play has progressed, much has been learned about the sequence, transitions, and content of the stages of play development, and about individual and cultural differences in the developmental progression and range of play behaviors. The conceptualization of play as a developmental construct containing sequentially observed categories of behavior has: (a) encouraged the systematic study and analysis of developmental trends in play, (b) made explicit the fact that play behaviors that usually occur at certain times do not always appear automatically, and (c) prompted research on methods of promoting play development at all age levels.

The Play Development of Infants and Toddlers

During the past 20 years, infant and toddler play development has been studied extensively. In this early period, exploratory/sensorimotor play is primary. However, the beginnings of symbolic play and the emergence of reciprocal social games or routines are also evident. These early play behaviors form the basis for the development of the wide and complex range of playful activities that human beings exhibit throughout their lives.

- ***Exploratory/sensorimotor play***

The initial play of infants grows from sensorimotor exploratory behavior, which consists of visual and motor actions upon the objects and people of the environment and experimentation with their reactions. Piaget (1962) identified the sensorimotor stages of development that occur during the first 2 years of life. The earliest stage is reflexive and the second, called primary circular reactions, involves coordination of reflexes. That is, a reflex, such as sucking, can be coordinated with movements of hand and arm, so that a thumb can be sucked. By 6 months of age (i.e., sensorimotor stage 3) infants try to make interesting experiences occur or continue by their goal-oriented actions. For example, infants will hit or kick to make a toy continue to twirl. In the fourth stage, during the latter half of the first year, infants can coordinate their sensorimotor schemas. The last two stages, which occur during the second year of life, involve inventing new sensorimotor schemas (e.g., trying to solve a puzzle through a variety of trial-and-error actions) and, finally, engaging in mental or imaginary exploration (e.g., trying to solve the puzzle by looking for a certain shape that is kept in mind). This final stage marks the transition to representational (i.e., symbolic) thought. According to Piaget, children are able to assimilate their experiences and construct knowledge first through their exploratory/sensorimotor (i.e., practice) play and then through their symbolic play (i.e., pretense).

The manipulations of practice play, in which means rather than ends are important, gradually give way to purposeful manipulations. By late toddler age, practice play often has elements of constructive and symbolic play.

The sensorimotor action schemas used by infants and toddlers have been categorized by Uzgiris and Hunt (1975). At first, the same action is applied to all objects; for example, mouthing or shaking actions are used on food, rattles, books, and people. As exploration continues, infants learn to differentiate

actions according to the appearance of the object; they shake rattles, put bottles in their mouths, visually inspect books, and touch gently or pat people. The final action schemas show the influence of social transmission of knowledge. Books are brought to adults to be read, beads are put around the neck, and small cars are pushed along on their wheels.

As these action schemas are mastered and the objects explored, the learning is consolidated through play in which infants practice variations of motor actions. Rubin, Fein, and Vandenberg (1983) describe sensorimotor play as "repetition with deliberate complication" (p. 700) in which adaptive behaviors are consolidated and reorganized. Sensorimotor play is called practice play by Piaget because of its repetitive nature. Sensorimotor play has also been called functional play (Buhler, 1935). Because of the pleasure infants appear to experience in exercising their existing sensorimotor schemas, this early play provides "function pleasure." It is the form of ludic (i.e., playful) activity that has been characterized as the least mature because it predominates during the earliest age levels. Sponseller and Jaworski (1979) found that toddlers spend more than 50% of their time in practice play. Practice play with objects is the primary type of play that infants initiate, although they respond to adult-initiated symbolic and social play.

The relationship between exploration and exploratory (i.e., practice) play has been studied by a number of researchers (e.g., Berlyne, 1960, 1966; Fenson, Kagan, Kearsley, & Zelazo, 1976; Hutt, 1971, 1979; Hutt & Hutt, 1977; McCall, 1974). McCall (1979), who has studied the relationship between exploration and play during the first 2 years of life, states that he is "not concerned about the fuzziness of the distinction between exploration and play" (p. 36). He indicates that young children vacillate between these two modes because they use exploration to acquire information and play to influence the environment.

A number of researchers (e.g., Fenson et al., 1976; Inhelder, Lezine, Sinclair, & Stambak, 1972; McCall, 1974) have studied the stages of sensorimotor play. First, infants engage in exploratory and playful visual and motor transactions. Then motor and visual transactions are combined. By 9 months of age, infants are more likely to select novel objects for exploration and play. They especially enjoy objects that are responsive (e.g., noisemaking or bouncy). By 12 months, making things work and exploring cause and effect begin to be of interest. Toys that perform when children act upon them have special appeal.

In the second year, as children begin to understand the social meaning of objects, their play demonstrates this awareness. They playfully explore relationships between functions of objects, combining and coordinating objects in various spatial and causal relationships. As they play, they begin to classify objects that are alike, putting them in piles or collecting them, although they cannot yet verbally express the criteria they use for classification. They may collect cars or blocks in a basket, dump them all out and then arrange them in rows by color or stack them by size.

The manipulations of practice play, in which means rather than ends are important, gradually give way to purposeful manipulations. By late toddler age, practice play often has elements of constructive and symbolic play. For example, instead of stacking and restacking the blocks (i.e., practice play), children are more likely to build a structure and label it as a garage. McGhee (1984) states that a distinction between exploratory play

and playful play is exhibited by 2-year-olds. Exploratory play is interesting but not humorous; playful play is associated with incongruity and has humorous elements. For example, 2-year-olds will engage in incongruous actions such as drinking from a shoe or giving inappropriate labels to objects, such as calling dogs cows. When they find these deliberate incongruities funny, they are giving evidence of their cognitive development and beginning ability to play with ideas (i.e., symbolic play).

- ***Pretense/symbolic play***

The first instances of symbolic play, which Rubin et al. (1983) characterize as "assimilative manipulation of symbols" (p. 700), can be observed during the second half of the first year of life. Between 9 and 30 months of age, children increase their abilities to use objects in symbolic play. They learn to transform objects (i.e., substitute them for other objects and to act toward them as if they were these other objects) during this age period. Using a block as if it were a sandwich and pretending to eat it is an example of a transformation.

Numerous researchers (e.g., Elder & Pederson, 1978; Fein, 1975; Fein & Apfel, 1979; Lowe, 1975; Nicolich, 1977; Sinclair, 1970; Watson & Fischer, 1977) have studied the development of symbolic play. During infancy there is a systematic shift toward pretense that does not seem to be affected by cultural influences (Rubin et al., 1983). Nicolich (1977) describes the stages of pretense during the second and third years of life. At about 12 months, infants seem to make a strong move to pretend play, operating in the "as if" mode first by replicating details of real life with realistic objects. Gradually, pretend play becomes separated from specific contexts, outcomes, or needs, and becomes less dependent upon realistic materials.

Researchers have studied children's pretense during the second and third years of life to pinpoint the various levels that children go through in developing representational abilities. These include a) decontextualized pretense, b) self-other relationship, c) object substitutions, and d) sequential combinations. The first of these, decontextualized pretense, is shown by children's emerging ability to engage in pretend actions out of context. For example, by 12 months they eat without food or sleep when they are not tired and they perform these behaviors out of the settings where the real behaviors typically occur.

During the second year of life, there is also a change in the self-other relationship. A typical pretend play action at 12 months is for the infant to pretend to drink from an empty cup—a self-referenced action. At 21 months the infant is likely to feed a doll with an empty bottle—an other-referenced action. Initially, children are the symbolic actors; later, children manipulate objects as though the objects were the actors. The third process, object substitution, begins in the second half of the second year. According to Watson and Fischer (1977), by 24 months about two-thirds of children demonstrate transformational behavior. Realistic objects are more likely to be used before 19 months, but substitute objects become increasingly employed by 24 months. Combining and coordinating the objects and actions into sequenced and multi-schemed pretense (i.e., sequential combinations) and giving evidence of planning and of language use in symbolic play are achieved between the ages of 2 and 3 years (Nicolich, 1977).

• ***Social play and games***

Even very young infants are responsive to social stimulation (Brazelton, Koslowski, & Main, 1974; Clarke-Stewart, VanderStoep, & Killian, 1979) and in the second half of the first year are capable of engaging in reciprocal social games (Bakeman & Adamson, 1984; Bruner & Sherwood, 1976; Lewis & Rosenblum, 1974; Stern, 1977).

Stern (1974, 1977) reports that eye contact between mother and infant serves to maintain and break the flow of interaction during the early months of the infant's life. Mother and child interactions change when the child reaches about 8 months; both mother and child can focus on an object other than each other. Stern concludes that learning about the social world precedes learning about the object world. The view that the precursors of play originate in social relationships is also held by El'konin (1966), Lewis (1979), McCall (1979), Sutton-Smith (1979a), and Vygotsky (1967). Piaget, on the other hand, asserts that interaction with objects is the primary play mode.

McCall (1979) characterizes the stages of social play as follows: From 2 to 7 months, infants explore their social influence through playful interaction. By 13 months, infants intentionally elicit social responses through play and by 21 months they engage in symbolic social play. Thus, even young infants are aware of social contexts. McCall (1979) states that symbolic play has a major exploratory element because it is "fantasy exploration of social influence" (p. 37). Sutton-Smith (1979a) points out that pretend play is never totally solitary; it always has an element of "performance," before a real or an imagined audience.

Hay, Ross, and Goldman (1979) describe infant games as having the qualities of all social interactions: mutual involvement, alternation of turns, and repetition of sequences, as well as the playful quality of nonliterality (i.e., pretense). These early games, such as peek-a-boo or hiding objects, are often called exchange routines or rituals because they do not have true competitive elements (Kirschenblatt-Gimblett, 1979). Many theorists believe that early social games provide the basis for all later social rule-governed behavior.

Preschool and Kindergarten Children's Play

The play development of children age 3 to 5 has been studied more extensively and continuously than that of any other group. This age period is one in which major changes in play occur and the development of different kinds of play can be readily observed. Piaget (1962) states that play during this age period serves an assimilative function, enabling children to consolidate their experiences. The means by which specific processes and structures of play are developed during this age period have been of major interest to researchers.

• ***Exploratory, practice, and constructive play***

Preschool and kindergarten children engage in exploratory play, but they spend less time exploring than infants and toddlers do. Ellis (1979) found that 3- to 5-year-olds spent an average of only 30 seconds in exploration before beginning to play with a novel object. As children grow older, practice play is most often observed when novel materials, objects,

or actions are presented. Practice play constitutes about 33% of the play of 3- to 5-year-olds, but less than 15% of the play of 6-year-olds (Rubin et al., 1983). This type of play also begins to contribute to the development of coordinated motor skills needed for later game playing.

Gradually, practice play is replaced by constructive play, in which children engage in self-regulated creation or construction of a product or in problem solution. For example, instead of moving their fingers around and around in the finger paint, children are more likely to draw the outline of a house or person in the paint. Constructive play is the most common activity (40%-50%) among preschool and kindergarten children (Hetherington, Cox, & Cox, 1979; Rubin, Maioni, & Hornung, 1976). Constructive play is not considered play by all researchers (e.g., Piaget, 1962) because it falls between the assimilative and accommodative modes. It is commonly called a play activity in school settings, however, and its relationship to problem-solving ability is of special interest to some researchers (e.g., Forman & Hill, 1980; Pepler & Ross, 1981; Sylva, Bruner & Genova, 1976; Vandenberg, 1981b).

- ***Symbolic/pretense, dramatic, sociodramatic play***

According to Singer and Singer (1979), who have extensively studied imaginary play, the preschool years are "the golden age of socio-dramatic and make-believe play" (p. 195). The early solitary or dyadic symbolic play of infants and toddlers is gradually expanded into increasingly social and complex symbolic play, reaching full flower in children of 4 and 5. It then begins a gradual decline, at least in overt manifestations. The development of dramatic and sociodramatic play during preschool years has been the focus of study of many researchers (e.g., Connolly, 1981; Emmerich, 1977; Hetherington, Cox, & Cox, 1979; Johnson & Ershler, 1981; Miller & Garvey, 1984; Rubin et al., 1976; Rubin et al., 1978; Sanders & Harper, 1976; Smilansky, 1968; Sponseller & Jaworski, 1979).

Although group pretense becomes more popular during this age period, solitary pretense is still an important part of symbolic play. Children pretend with replica objects (e.g., miniature versions of people, cars, houses), with realistic or nonrealistic normal-sized objects, or without objects. The developmental trends in object use during pretense have been studied by Wolf and Grollman (1982); Wolf, Rygh, and Altshuler (1984); and Overton and Jackson (1973). Children in the preschool and kindergarten years are more adept at using imaginary objects than toddlers are. Preschoolers and kindergartners use nonrealistic objects frequently and increase the diversity of their pretense themes (Pulaski, 1973). They can also employ substitute objects that are ambiguous (i.e., having the potential of many uses). Further, in pretend, they can use objects in counterconventional ways (i.e., use an object with a commonly identified use for another purpose). However, they may protest that the counterconventional object lacks resemblance to the real object. When the object substitution becomes too inappropriate, children comment on the absurdity and often rename the object or task to indicate their awareness of the inappropriateness. For example, when children were asked to substitute fruit for the "head" piece in a puzzle, they renamed the picture "fruit man"

(Golomb, 1977).

Role taking with replica objects is exhibited in both solitary and peer play. Wolf et al. (1984), reporting on a longitudinal study of play with replica objects, indicate that as children reach preschool age they play both narrator and actor roles during pretend play with replica objects. Shantz (1975) defines role taking as the covert understanding of role attributes and role enactment (i.e., role-playing) as the ability to enact those attributes. Shantz (1975) and Garvey (1977a, 1979) have demonstrated that the development of role taking and of role enactment abilities, which are essential for pretense, follow predictable sequences. For example, children of 2 1/2 years can act the mother role with the caregiver acting as baby, but not until age 3 can they assume reciprocal social roles with peers, enacting mother, father, and baby roles (Miller & Garvey, 1984). The ability to frame the play in terms of role expectations, to coordinate roles, and to communicate within and out of the play frame becomes greater as children's age and experience with social pretense increase.

Miller and Garvey (1984) report that in pretend play with dolls, girls exhibit mature role-play by age 3. Mature role-play requires the ability to set up the context for play (i.e., the play frame) and to make the pretense acts congruent within that frame. Children use language to communicate within the play frame as well as to communicate about the play frame. Within the play frame they speak "motherese" to the dolls, exhibiting slow, repetitive, simple speech, nursery "tone," and euphemism. In negotiating the play frame, they issue play invitations, assign identities, improve the play production, and terminate the play performance.

The roles girls portray toward dolls include affection, nurturance, control, and teaching. Roles toward peers usually do not include affection but do include the other three elements. By age 3 the pretend play may have multi-schemed sequences prefaced by explicit plans. Verbal role taking is possible in two registers, with the child speaking both for the mother and for the baby. Boys are less likely to demonstrate their ability to be mother; however, they are also adept at employing appropriate social language, expressive tone, and voice patterns in pretend play (Martlew, Connolly, & McLeod, 1978).

Garvey (1977b), who has studied how social play and language are related, stressed that, in play, relationships are transformed within social systems; thus role enactment skills reflect children's role taking ability. Garvey describes four types of roles typically taken in group pretense play: (a) functional roles, which are organized according to the objects or an action plan (e.g., doctor, fireman); (b) relational roles, which are complementary and usually familial (e.g., mother and baby); (c) character roles, which are fictional or stereotypic (e.g., superman, witch); and (d) peripheral roles, for which no alternate identity is assumed (e.g., giving a prop to a role player).

Because of the many levels of interaction in group pretense, communication is a central part of the play process. Children must be able to understand and apply the structural properties of play communication.

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group pretense, communication is a central part of the play process. Children must be able to understand and apply the structural properties of play communication in the same way that they apply those of language. As is true for language, play competence is essential for play performance, and metaplay awareness (i.e., being able to think about play) is for play as important as metalinguistic awareness is for language. In negotiating the play frame, children must both set up a context for play and then use play as the text within that framework (Garvey, 1977a; Bretherton, 1984a).

Smilansky (1968) indicates that language serves five framing functions in group pretense (i.e., sociodramatic play): (a) to change personal identity, (b) to change object identity or action, (c) to substitute words for actions, and (d) to describe the context of the pretend action. Kirschenblatt-Gimblett (1979) states that application of language in these ways helps children gain an awareness that "This is play" (Bateson, 1956).

In preschool and kindergarten, sociodramatic play appears to follow an inverted U trend. Hetherington et al. (1979) found that, compared to pretend play at other ages, the highest percentage (71%) of group pretense occurred at age 5, with 6-year-olds having the next highest level (65%). Four-year-olds and seven-year-olds showed lower levels of pretense. Researchers who have charted the course of all forms of social play find that the solitary play curve appears to follow a U trend, not an inverted U, with solitary play being at its lowest level at age 5 as compared to age 4 and age 6 (Rubin et al., 1983). These results are congruent with the findings of high levels of sociodramatic play during this age period.

Saltz and colleagues (Saltz & Brodie, 1982; Saltz, Dixon, & Johnson, 1977; Saltz & Johnson, 1974) have been particularly interested in preschool and kindergarten children's development of thematic fantasy, which is pretense with fictional characters. Some evidence implies that thematic fantasy is a more mature form of group pretense than sociodramatic play. The latter draws upon events in children's everyday experiences, whereas thematic fantasy play uses themes from children's literature and the media.

In a study of play among children who were unfamiliar with one another, Stockinger Forys and McCune-Nicolich (1984) concluded that the most typical social interaction at preschool-age level is pretend play. Pretending seems to assist unfamiliar peers by providing a means by which children can find common ground for interaction.

- ***Social play and games***

During the preschool and kindergarten years, all forms of social play with peers become increasingly evident. In addition to group pretense or sociodramatic play, which has its own set of rules related to role enactment, social play takes two other forms: (a) rough-and-tumble play and (b) emergent games with rules.

Although rough-and-tumble play continues during the elementary years, it is initially manifested during early childhood (Aldis, 1975; Blurton-Jones, 1972). The movement patterns of rough-and-tumble play are similar to those of hostile behavior (e.g., running, chasing, wrestling, jumping, falling, hitting), but these behaviors are accompanied by signals (e.g., laughter, exaggerated movement, open rather than closed hands and faces) that indicate "This is play" (Bateson, 1956).

Blurton-Jones (1972) speculates that preschool may be a critical period in which this type of play is learned and states that it is important for children to learn to distinguish rough-and-tumble play from aggression. Some children, especially many girls, do not learn how to engage in rough-and-tumble play or to recognize the signals that indicate it is play, not aggression.

Aldis (1975) observed similar types of rough-and-tumble play and described the play signals (e.g., laughter, play screams, open and smiling mouths) that distinguish play and that increase the general arousal effect and thus the playfulness. This type of play is often hard for adults to allow, both because they are not always able to distinguish it from aggression and also because the increasing levels of arousal that it promotes may cause an escalation that is difficult to control. It is a very common type of play, however, in the early and middle childhood years.

Preschoolers also engage in social game play involving simple rules of reciprocity or turn taking. Kamii and DeVries (1980) have been particularly interested in the way young children play games with rules. Piaget (1932, 1962) has stated that truly competitive games cannot be played by children until they reach elementary age. He classifies play as "egocentric" among 2- to 5-year-olds and as characterized by "incipient cooperation" from age 5 to 8. Young children's game playing does not involve strict adherence to rules or competition. Rules of games are followed but the purpose is for everyone to enjoy the game, not to win.

Kamii and DeVries suggest that playing games with rules is useful for young children because they learn to decenter; that is, to consider other viewpoints. Kamii and DeVries (1980) describe how a typical game invented by children of 4 might be one in which every child follows the same set of actions or rules (e.g., putting marbles in a container) but the children take turns doing the action by themselves rather than playing cooperatively or competitively.

DeVries (1970) found five stages of competitive game playing in 3- to 7-year-olds, ranging from (a) viewing the opponent as a cooperative partner, (b) following the rules as a pattern rather than with the intent of winning, (c) following rigid patterns but having an attitude of competition, d) trying to win but using transparent strategies, and (e) playing competitively. She reports that children become able to play both complementary role games and competitive role games when they reach 5 or 6 years old. This type of play becomes a major component of the play of middle childhood.

Elementary Children's Play

Roberts (1980) notes that, although the play of elementary-age children drew research attention earlier in this century, the play of children from 7 to 12 years is not of major current research interest. He cites two reasons for this lack of attention. First, theorists hold the view that play does not have as central a role in the accommodative learning mode of middle childhood as it does in the assimilative mode of the early childhood years (Fein & Schwartz, 1982; Piaget, 1962); therefore, study of play in children of elementary age has not been considered as crucial for understanding children's development and for application to educational practice.

Second, it is less convenient to study middle childhood play because much of it occurs outside the school setting, and these other settings (e.g., home, playground, neighborhood) do not lend themselves to the use of the direct observational methods commonly used in research on early childhood play. Roberts (1980) comments, "Once a child enters school . . . and certainly by the time he enters middle childhood, play is pushed to the edge of life" (p. 97). That is, play occurs primarily outside of school.

Although evidence on play in middle childhood has not been analyzed as extensively as that in early childhood, sufficient studies do exist to provide a general overview of certain types of middle childhood play. There is debate on the question of whether children in this age period are playing less than they used to or whether they are merely engaging in different types of play. Roberts states that although patterns of play have changed, games of middle childhood still are varied and extensive. The major play type commonly reported during middle childhood is that of rule-governed games. However, practice, constructive, and symbolic play can also be observed.

- ***Practice and constructive play***

Eiferman's (1971) studies of recess play show that many elementary-age children still engage in unstructured motor practice play. Running, jumping, sliding, twirling, and throwing balls or other objects are activities frequently observed on playground and street. Although it appears similar to the repetitive practice play of early childhood, this practice play differs from earlier practice play because much of it appears to be ends rather than means related. That is, children engage in it for the purpose of enhancing motor skills that are needed for competence in games or sports. According to Eiferman, there is an increase in practice (i.e., exploratory) play in the later elementary years.

Constructive play is a primary play mode in middle childhood, both in and out of the classroom. Partially this is because it is one of the few play-like activities allowed in work-centered classrooms. For example, building a diorama or creating a play about a social studies topic allows children to engage in constructive play. Whether it is considered play by children appears to depend on whether they choose to do it or see it as imposed by the teacher (King, 1979) and whether the task is enjoyable (King, 1982b, 1982c).

Play with materials solely for the sensory experience rather than for the construction of a product is less common than in earlier years; however, out-of-school constructive play and sensorimotor play are popular (Allen, 1968; Berg & Medrich, 1980). Construction activities can range widely over the continuum of play to work depending on how many of the elements that signal playfulness are present.

- ***Symbolic play***

There are few studies of the changes that occur in pretense during the elementary years. Informal observations suggest that sociodramatic or group pretense continues to decline after the age of 6 or 7 but the trend of the decline has not been described. Because of the paucity of research data, it is not possible to indicate how much of the decline is general and how much is context specific. That is, these play behaviors seem to be less frequently

observed in school and playground settings but they may continue in less public environments.

Eiferman's (1971) comparative study of middle class and working class children's recess play suggests that, although middle class and working class children follow a similar sequence in their play development, the age of highest incidence of particular types of play varies between the two groups. In both groups, sociodramatic play reaches a peak and then begins to decline as games with rules increase. However, the peak of pretend play for working class children occurs at a later age (6 to 8 years) than in middle class children (5 to 6 years). Middle childhood may be an especially important age for group pretense development for children of working class families. Only further study of pretend play in middle childhood can answer the question of what really happens to it as children grow older.

Although evidence from empirical studies is sparse, informal observation suggests that symbolic play evolves in a number of directions during the middle childhood period. One change is that much symbolic content is integrated into games with rules. Opie and Opie (1969) report that much group fantasy play is evident in British children's game playing. Other examples of symbolic games of middle childhood include fantastic challenge games such as Dungeons and Dragons and competitive board games such as Monopoly.

Another way symbolic play changes is that it becomes abstract, being transformed into mental games and language play. Middle childhood is an age of verbal invention, and verbal play seems to peak at age 8 or 9. Roberts (1980), Sutton-Smith (1976), and the Opies (1959) describe the many ways language becomes a plaything in children's riddles, puns, tongue twisters, insults, chants, and rhymes. Sanches and Kirschenblatt-Gimblett (1976) maintain that sound play is especially important to children in elementary grades. The development of secret codes, which involve playing with the syntax and semantics of language, is also especially popular with this age group. Children's riddles serve the purpose of parodying adult emphases on rote learning and oral interrogation (Roberts & Foreman, 1971; Sutton-Smith, 1976). McGhee (1984) reports that the humor older children experience in verbal play is a result of their more complete understanding of the meaning of lexical incongruities.

Symbolic play also becomes appropriately socialized. It is either practiced in private places (e.g., one's own room or in one's own head) or it is exhibited in publicly approved forms (i.e., on a theater stage). Although scant research data describe this transition, adult retrospective self-reports (Bergen 1985, 1986), children's self-reports, and parental reports (J. L. Singer & D. G. Singer, 1978, 1985), as well as the popularity of miniature toys, suggest that much dramatic and fantasy play occurs in the more private spaces of home environments. Elementary age children may spend hours playing detective, or engaging in other fantasy activities of which adults are hardly aware. They often have secret clubs that restrict membership to those who take similar fantasized worldviews. Rubin et al. (1983) include daydreaming, which they characterize as "playing with ideas," as "one of the developmental successors to the young child's active involvement" (p. 700) in overt pretend play. Reading mystery or adventure stories and watching

television dramas provide other means of living in a pretend world.

In Roberts's (1980) study of children in Scotland, the typical child interviewed spent an average of three hours a day viewing television. Roberts concludes that this time reduces the amount of time children spend in outdoor play. Television may serve as a substitute for observably active pretend play. Organized activities, such as after-school lessons, adult-directed clubs and sports participation, reduce the time available for pretend. Thus, pretend play may decline in amount as well as change in character. Children differ greatly on this play dimension, as studies of imaginative play demonstrate (Singer, 1973).

- ***Social play and games with rules***

In the early part of the century, there was great interest in the games of middle childhood. As a result of the child study movement (Hall, 1920), a number of surveys of children's games were conducted in the years between 1900 and 1920 (these have been reviewed by Roberts, 1980, and Schwartzman, 1978). Since the 1960s the playground and street games of elementary-age children have again become a topic of research interest. Many of these recent studies have been conducted by anthropologists, linguists, and folklorists rather than by psychologists (e.g., Abrahams, 1962; Von Glascoe, 1980).

Research conducted in England (Opie & Opie, 1959, 1969), Scotland (Roberts, 1980), France (Caillois, 1961), Israel (Eiferman, 1971), and the United States (e.g., Abrahams, 1969; Brewster, 1953; Fischer & Fischer, 1963; Sutton-Smith & Rosenberg, 1961) has indicated that child-initiated game playing is not disappearing; however, some traditional games are no longer being played by elementary-age children, and sports-related games are very popular.

Opie and Opie (1959, 1969) were particularly interested in the language children used in their traditional game playing and the pervasive culture of childhood that preserved these games in numerous versions throughout the country. The Opies indicate that middle childhood games often involve a large element of luck so that the competitive element is blunted. This allows more children to enjoy the game, a particularly important point when games are played in neighborhoods or playgrounds where choice of players is limited.

In Scotland, Roberts (1980) surveyed children's knowledge of traditional and nontraditional games, language play, and sports. He found that children are familiar with a wide range of games, but that girls still play more traditional games while boys focus on ball games and sports. Sutton-Smith and Rosenberg (1961) reported similar findings, indicating that girls' choices of games had increased over the past century while boys' choices had narrowed.

In recess observations, Eiferman (1971) found that the highest incidence of game playing is during the age

Unstructured or free play also poses challenges of physical, mental, or social effort; and many kinds of practice play involve the challenge of skill improvement.

period from 10 to 12. After age 12, games decline in popularity, to be replaced by unstructured practice play, conversations, and organized sports. Eiferman identifies four types of games observed on the playground: (a) steady or constant games, such as tag, which are played consistently; (b) recurrent or cyclical games, such as marbles or hopscotch, which seem to follow cycles of popularity and decline; (c) sporadic games, which are played rarely; and (d) one-time games, such as hula hoop contests, which rise once to popularity and then disappear. Eiferman also stresses that after age 12, interest in sports rather than games is emphasized; she attributes much of the practice play observed with older children to the desire to increase motor skill performance for playing sports. Comparing play and sports, Roberts (1980) declares, "Sport is hostile to play" (p. 30) although "the spirit of fantasy pervades even the elaborate structures of competitive sport" (p. 7).

Eiferman (1971) states that in middle childhood the games played feature the "meaningfulness of a challenge" (p. 287). This challenge is present if children possess both the skills needed to play and an understanding of the rules of the game. The level of skill and understanding must be sufficient to play well but not so great that the outcome of the game is predetermined; that is, there must be challenge. All structured rule-governed games have the intellectual challenge of rule mastery and the motivational challenge of consistently conforming to the rules.

Piaget (1932) studied games with rules by observing the way boys aged 7 to 13 played the game of marbles. He concluded that boys of 7 to 10 played very differently from boys of 11 to 13. The younger boys followed differing, contradictory, but rigidly held rules that seemed to be arbitrarily accepted. The older boys arrived at rules by consensus. They were clear about the rules but also could intervene and change the rules when they decided to do so. Piaget constructed a theory of moral development that drew upon this study of marble playing. He was unable to find a girls' game that was as complex and so did not investigate the differences among girls' game playing and their moral development.

Competitive games require an additional challenge of winning and receiving prestige or material rewards, and group competitive games have the additional challenge of coordinating one's actions with those of other participants in the group (Eiferman, 1971). This latter challenge is also present in cooperative group games. Unstructured or free play also poses challenges of physical, mental, or social effort; and many kinds of practice play involve the challenge of skill improvement. Eiferman believes that the preparation for challenge or the participation in challenge provide the underlying motivation for much play in middle childhood.

- ***Play with academic skills and problem solving***

In the early elementary classroom, the use of play to foster problem solving, thinking skills, and academic skill learning has been of interest (Pellegrini, 1980, 1982a, 1984a; Vandenberg, 1980, 1981a). Usually this type of play has been labeled "discovery learning" activity (Bruner, 1966). The open classroom and learning center classroom approaches have been partially built on two factors that have been identified as essential

for play: (a) allowing children to feel internal control over their activities and (b) allowing them to use their internal motivation to initiate their learning activities. Rather than promote the assimilative reality-bending characteristics of play, however, the use of discovery learning through playlike activity is planned to meet accommodative purposes. That is, playful approaches in the classroom usually are ends rather than means oriented. For example, instead of engaging in free play with the texture and other physical properties of water, children may hypothesize how fast an object will float as water is poured down different widths of tubing and then experiment playfully by practicing the actions over and over while writing down what happens and then coming to conclusions.

Many educators plan classroom activities that include elements of humor, encourage playing with ideas, and promote creativity. Learning centers encourage practice play, assist mastery of academic skills through games, and provide playful problem-solving and inventive thinking activities. Educators also support the performance of plays, the writing of imaginative stories, the expression of artistic abilities, and the playful exploration of computers and other technological equipment.

Distinctions between work and play begin to blur at this age level when means and ends elements may both be present in classroom activities (King, 1982b, 1982c). Although research evidence is mixed, playful discovery approaches seem to foster certain types of higher-level learning (Christie & Johnsen, 1983; Vandenberg, 1980).

Play in Adolescence and Adulthood

Theorists have disagreed about whether play serves similar purposes for adults as it does for children (Herron & Sutton-Smith, 1971) or even whether play exists in adults (Piaget, 1962; Csikszentmihayli, 1979). Herron and Sutton-Smith (1971), who define play as "an exercise of voluntary control systems with disequilibrial outcomes" (p. 344), contend that play is pervasive throughout life, but that it takes different forms at various ages. Although play may be phenotypically different (i.e., taking different forms) at later ages, it may be genotypically similar (i.e., serving basic human needs) at all ages (Singer & Singer, 1976). The tendency to playfulness seems to be inherent in human beings, but its manifestations vary, not only because of the changes in behavior that come with various developmental stages, but also because of cultural expectations of appropriate behaviors at various age levels. For example, it is not usually appropriate for adults to wear dress-up clothes and engage in sociodramatic play. However, adults do participate in role simulation exercises, belong to community theater groups, hold brainstorming sessions, join liars' clubs, attend political conventions, and engage in work roles requiring sociodramatic-like behaviors. Many adult rituals communicate a sense of playfulness and nonliterality. Older children and adults are also more adept at appearing to be working when they are actually playing—for example, by doodling during a boring lecture or by daydreaming while appearing to attend.

Thus, as people grow older, play's outward manifestations continue to change, becoming further miniaturized, socialized, and abstracted. Symbolic board games in which pawns (e.g., knights) are manipulated instead of the players using their own

bodies to be the pretend protagonists and in which paper symbols (e.g., thousand-dollar notes) are treated as real money are examples of this trend, as are mental games in which language takes the place of objects and people. Herron and Sutton-Smith (1971) ask, "Is the 'reality' of chess or football more real than the reality of 'bogeyman?' Or is it simply that as adults we are more familiar with our own ludic forms?" (p. 301).

Csikszentmihayli (1979) contends that adult ludic behavior is better characterized as "flow" rather than play. Although flow has elements similar to those of play, it need not be voluntary. It is a condition, in either a work or play setting, in which the challenges match one's skills. People who enjoy their work, he states, describe it in ludic (i.e., playful) terms: It takes their full concentration, they feel in control, they lack self-consciousness, and they have goals that lead to immediate feedback. He maintains, "Play is the experience of flow in a setting or frame of action in which the activity is perceived to be voluntary or autotelic; that is, the goal is in the activity itself and unrelated to 'real-life' consequences" (p. 268). Although many adult activities involving flow would not be characterized as play by Csikszentmihayli, he sees "play as a training ground for the more adequate adult life of flow in any kind of experience (work or play)" (p. 275). Play is a culturally or individually structured form in which one can experience flow (i.e., living at optimal capacity).

Researchers are only beginning to explore the course of development of flow during middle childhood and adolescence. It is possible that research on the middle childhood years, when the distinctions between work and play become more defined as well as more overlapping (King, 1982c) could explain how in adults one person's work becomes another's play and vice versa. Eiferman's (1971) contention that challenge is a major factor in play during the later elementary years would predict that the condition of flow, in which challenge matches skill, can be experienced in either play or work at that age.

It is clear that the qualities children exhibit in play are ones that adults continue to seek, even though the question of whether these activities should be labeled work or play is unanswered. Sutton-Smith (1979c) believes that "play may lead ultimately to the capacity for 'flow' in adulthood; that those who have learned to engage in autotelic play behaviors when young will show more capacity for finding 'flow' possibilities in their adult lives" (p. 313).

Lewis (1979) reminds researchers that

> in adults the range of activities we want to call play, from symbolic play to exploration to sports to the whole gamut, is so broad that I believe we would be naive to assume that there was a single developmental course for them all. They may have somewhat different developmental histories. (p. 33)

It remains for researchers to determine those histories.

Individual and Cultural Differences in Play Development

Although uncovering universals of play development has been the major focus of psychological play research, many studies have also focused on identifying individual and cultural differences. Stable individual differences have been observed in play activity levels, cognitive styles, and personality traits. Sex, ethnic, and socioeconomic differences have also been noted frequently.

Anthropologists rather than psychologists have been the major researchers of children's play in other cultures. Psychologists and anthropologists have often focused their studies on different play forms. Psychological studies are typically directed at sensorimotor or symbolic play development, whereas many anthropological studies have explored organized games rather than unstructured play (Schwartzman, 1979). Kirschenblatt-Gimblett (1979) states that play takes different forms in different cultures and adds, "Which activities count as play is culture specific" (p. 220). Cultural differences in onset of play stages, elaboration of specific types of play, patterns of adult modeling or facilitating of play, and attitudes toward play/work distinctions have also been reported.

Even when psychologists and anthropologists study similar play types, because their questions of interest and research methods differ, their data are not usually directly comparable. It is also difficult to interpret reports of individual or cultural differences because they are often in studies in which several variables are confounded. For example, activity levels or cognitive styles may be confounded with sex, social class, or ethnic distinctions. Reported sex differences, in particular, may be explained by influences of both individual and cultural factors. Results from a wide range of studies have indicated that individual and/or cultural differences in play are apparent in a number of areas.

- ***Activity levels***

The amount of energy used in play, the physical and motor behaviors exhibited, and the level of sustained play activity differ among children from their earliest months of life. Infants exhibit differing tempos of play by 6 to 9 months (Kagan, 1971; Longo, Harvey, Wilson, & Deni, 1982; McCall, 1974; Wenckstern, Weizmann, & Leenaars, 1984). Some infants play at a slower, more focused tempo and exhibit less repetitive motor behavior. Others show a faster tempo and a wider range of sensorimotor actions. Toddlers also show variation in tempo of play, especially in regard to the number of different actions and objects used in pretend play (Fein, 1979). Children can be identified as "high arousal" and "low arousal" types by preschool age (Hutt, 1979).

Ellis and Scholtz (1978) report that physiological factors affect activity patterns. For example, Down syndrome children operate at a slower pace than normal children (Linford, Jeanrenaud, Karlsson, Witt, & Linford, 1971). A number of studies show higher activity levels for boys than for girls (DiPietro, 1981; Pulaski, 1973; Smith & Daglish, 1977). Preschool females have been reported to be more sedentary and males more active in dramatic play (Rubin, Watson, & Jambor, 1978). Preschool males are more active motorically during exploratory play than females and 5-year-olds are more active than 4-year-olds (Ellis & Scholtz, 1978). However, activity levels also fluctuate as a function of context (Wade, Ellis, & Bohrer, 1973) and of cultural expectations (Blurton-Jones & Konner, 1973).

- ***Cognitive styles***

Researchers have also reported differences in the ways children understand and think about problems and in their methods of perceiving, remembering, and judging information

(e.g., Saracho, 1983, 1985). These cognitive style differences are evident in young children's object and pretend play and in their social play. Wohlwill (1984) reports that there are individual differences in the propensity to use exploration or play as a primary mode of orientation toward the world.

Children who have been identified as field dependent (i.e., gaining their information from people) or field independent (i.e., focusing on information in the inanimate object world) show differences in play styles (Saracho, 1985). Saracho suggests that a strong relationship exists between play and cognitive styles, with those children who are field dependent being more likely to engage in parallel, associative, and cooperative play and those who are field independent being more likely to prefer solitary play. Lewis (1979) agrees that at an early age some children are more object-oriented, while others are more socially oriented.

In studies of early symbolic play by Harvard University Project Zero researchers, distinctive play styles have been observed: Some children are "dramatists," interested in sequences of interpersonal events and feelings, while others are "patterners," interested in configural uses of materials and curious about the object world. These differences become evident by 18 to 24 months. By 3 years, children become able to use both play styles, even though many show a strong preference for one or the other initially (Shotwell, Wolf, & Gardner, 1979). The researchers conclude that these observed styles "represent fundamentally different, but equally valid, routes toward general symbolic competence—routes originating both in children's overall personalities and in their underlying mental structures" (p. 130).

Individual differences in disposition to fantasy play are evident by age 3 or 4 (Singer, 1973; D. G. Singer & J. L. Singer, 1978). High and low fantasy children do not differ by sex or IQ but do differ on ability to delay gratification and on measures of creativity. More firstborns and only children are high in fantasy. In 5-year-olds, high fantasy predisposition is related to originality, spontaneity, verbal fluency, ideational fluency, and flexibility (Pulaski, 1970).

There are also individual and cultural differences in the way language is used in play. Individual styles of language ability affect levels of pretense. Referential (i.e., object-oriented) and expressive (i.e., feeling-oriented) speakers show different levels of pretend play, with expressive children showing more pretense (Fein, 1979). Children of different socio-economic and cultural backgrounds have different levels of ability to use language in sociodramatic play (Smilansky, 1968). In children's speech play and riddling there are cultural differences in form and content of speech as well as in the style used to express imaginative play (Kirschenblatt-Gimblett, 1976).

- ***Personality traits***

Social orientations exhibited in play are related to cognitive styles (Coates, Lord, & Jakabovics, 1975; Halverson & Waldrop, 1976; Rubin & Maioni, 1975; Rubin et al., 1978). For example, children who engage in solitary play often are field independent (Saracho, 1985).

There are also personality differences in the dimension of "playfulness" (Lieberman,

1965). Teacher ratings of children indicate a factor of playfulness in kindergartners (Lieberman, 1965) and in boys (Singer & Rummo, 1973). Intelligence levels appear to be a confounding factor, however. Characteristics of the home environment also appear to be related to children's playfulness (Barnett & Kleiber, 1984). Studies of adolescents and adults suggest that playfulness may be identified at these levels although its manifestations are much more varied in older subjects (J. N. Lieberman, 1977).

- ***Gender/sex roles***

Gender differences in play development are cited by many researchers. Whether these differences are due to innate traits of each gender or to cultural expectations regarding sex roles that elicit and support differences is as yet unclear. There is evidence to support both hypotheses.

Gender differences reported include higher activity levels for preschool boys (Maccoby & Jacklin, 1974); more sedentary activity for girls (Rubin et al., 1976); different toy and play preferences (Fagot, 1974; Fein & Robertson, 1975; Roberts, 1980; Sutton-Smith & Rosenberg, 1961); and different thematic content in pretense (Connolly, 1981; Pulaski, 1973; Singer, 1973).

It is evident that sociocultural factors begin to influence sex role play interactions at a very early age. For example, women who interacted with unfamiliar infants whose gender had been labeled arbitrarily by researchers selected stereotypic male or female toys on the basis of the gender label (Smith & Lloyd, 1978). Their levels of verbal encouragement and responsiveness to gross motor play were significantly different for perceived boys and perceived girls; they showed more verbal encouragement to girls and more gross motor response to boys. Other studies show that parents of both sexes interact differently with sons and daughters (Arco, 1983; Bright & Stockdale, 1984; Crawley & Sherrod, 1984; Lamb, 1977; Power & Parke, 1980, 1983) and give children of different sexes different play environments and materials (Rheingold & Cook, 1975). These differences in play interaction in the home also relate to later peer popularity (MacDonald & Parke, 1984).

Peers also support sex stereotypes in play. Male peers are particularly likely to ridicule or punish other males for perceived inappropriate sex role play (Downs & Langlois, 1977; Fagot, 1978; Pitcher & Schultz, 1983). Studies of play in other cultures also show differences in parent and teacher attitudes toward appropriate play for boys and girls (Ammar, 1954; A. B. Smith, 1983).

Play and games become even more differentiated between boys and girls as children reach middle childhood. Roberts (1980) and Sutton-Smith and Rosenberg (1961) report that more girls play traditional games during middle childhood while more boys channel their play into sports. Further, girls spend more time at home rather than in the neighborhood and play more quiet symbolic board games. Sutton-Smith and Rosenberg report that girls' play choices have broadened during the past half-century, whereas boys' choices have narrowed. Apparently, cultural expectations for girls have changed to allow a greater range of appropriate behaviors without a similar broadening of appropriate behaviors for boys.

- ***Stages and types of play***

In studies of the play of children from low income and/or minority groups and of children in non-Western cultures, differences in the onset and timing of stages in the development of pretense (Eiferman, 1971; Mead, 1975) or in its frequency and quality (Feitelson & Ross, 1973; Freyberg, 1973; Smilansky, 1968; Smith, 1977) have been observed. Many play training studies have focused on ameliorating the "developmental lags" in pretense of children in low income or minority groups (Freyberg, 1973; Saltz, Dixon, & Johnson, 1977).

In a discussion of the research of Shotwell, Wolf and Gardner (1979), Gardner concludes, "Symbolic play is something that we take for granted as developmental psychologists in the United States, but it may be an irrelevancy as far as other cultures are concerned" (p. 148). Schwartzman (1984) and P. K. Smith (1983) contend that these differences are not necessarily deficits. Researchers agree that form, content, and amount of pretense vary widely depending on the context in which they are observed. Because the settings, props, and time available for play differ in various cultural contexts, types of play observed in cultures other than that of the American white middle class are also likely to be different.

Schwartzman (1984) states that the ethnographic literature gives evidence that imaginative play exists even when the typical contextual elicitors and props are not present. Children use whatever materials they find and design their own toys. She also disputes the assumption that play cannot occur if children are required to work. She cites Fortes (1976), who reports evidence of an integration of play and work within the same context. For example, while Talesi children are working at their assigned tasks, they are exhibiting the behaviors that signal that they are playing. Bloch (1984) found that children in Senegal engage in representational play using the materials that are available in their environment.

Black urban children are introduced early into the street culture of the city and have long play interaction periods with peers and with street adults (Ogbu, 1981). The peer and street culture provides an important educative environment and many skills are developed in street play (Foley & McGuire, 1981). Children play action games that explore their physical capabilities (e.g., climbing fences, throwing rocks at targets). They also experiment with available materials (e.g., cardboard boxes, iron bars, discarded wheels) and construct buildings (e.g., using material from abandoned houses). Children also engage in role-playing (e.g., "racing" abandoned cars), and they engage in many varieties of language play such as "signifying" or "playing the dozens" (i.e., engaging in verbal insult contests) (Foster, 1974). These play activities promote the competencies of physical agility, adaptability, verbal skill, and role-playing abilities needed by urban children and youth.

Although cross-cultural studies of older children's play have given pictures of childhood cultures in various countries (e.g., Abrahams, 1969; Caillois, 1961; Eiferman, 1971; Opie & Opie, 1969; Roberts, 1980), comparisons of the similarities and differences between play in other cultures and in the United States have been sparse. In one cross-cultural study, Roberts and Sutton-Smith (1962) identified three basic types of games requiring

different competitive styles: (a) physical skill, (b) strategy, and (c) chance. They suggest that the predominant types of games observed depend on the cultural values of the society and that participating in a certain type of game assists children in handling conflicts and in learning the competencies needed in their particular culture. They conclude that play variety increases as complexity level of the culture increases. Eiferman reports failure to confirm this "enculturation" hypothesis in her observations of Israeli children's play.

- ***Adult-child patterns of interaction***

Cultural differences in adult-child interaction patterns as influences on the course of play development have also been reported. Working class parents in Israel do not place as much value on play and provide less support for pretend play in the home than do middle class parents (Smilansky, 1968). The Singers (1979) report that in the Aymara Indian culture, adults prevent imaginary play although games are allowed.

Early adult-child interaction patterns differ among various ethnic groups in the United States. For example, Mexican-American mothers engage in more nonverbal interactions and ask fewer questions than do other American mothers (Laosa, 1977). Differences in socioeconomic status are often more influential than ethnic differences, however.

Laosa (1977) concludes that the modes or rules for interacting are learned at home and thus children may learn different interaction styles. Moreover, even the meaning of interactions that appear to be similar may differ across cultural or economic groups. Because adult modeling of play interactions influences the course of play development (El'konin, 1966; Smilansky, 1968; Sutton-Smith, 1979a), children from various cultural backgrounds may exhibit different play developmental levels because of the interaction styles they have learned.

Ogbu (1981) argues that patterns of adult-child interaction in urban black families differ from those of middle class families because the competencies valued for survival differ. For example, adults exhibit abundant nurturance of infants but engage in adult-child contest relationships using verbal and physical rebuffs with children after infancy. Ogbu maintains that such combinations may help children learn to manipulate people and to fight back; thus, these interactions are adaptive for the urban environment. The differences in minority children's play may be influenced by these early social interactional patterns.

Because play serves as a form of communication of the shared understandings of a culture, the play transformations and paradoxical statements learned by children in a particular culture are influenced by the categories of that culture. Bateson (1956) contends that in play children learn what these cultural categories are; thus, through play children learn frames for behavior. Communicating about play across cultures may be doubly hard because the behaviors that signal paradoxical meanings in one culture may have different meanings in other cultures. For example, humor is often difficult to translate from one culture to another because the meanings embedded in the humor are not shared.

Huizinga (1950), who was one of the first to study the "play-element in culture," contends that play is older than culture and is the root of culture. According to Huizinga, not only is play the prerequisite for language, literature, and art, but it is also the base from which law, ritual, and even war have developed. In his view, play is an essential element of life and, thus, the development of play and the development of culture are always related.

Charting Developmental Trends

Although many of the trends in play development remain to be explored, a simple conceptual model that outlines the general trends of development can be drawn. It is based on trends identified by research, informal observation, and self-report information. Figure 3-1 gives these trends in play development.

Conclusion

This chapter has given an overview of play development from infancy to adulthood. Although more empirical evidence describing developmental trends is available for some types of play than for others, a general picture of play development across the life span can be outlined. Play development parallels that of many other areas. For example, representational thought, language, and symbolic play begin at about the same time and ability to play games with rules coincides with concrete operational thought and physical coordination of complex movements.

While parents, educators, and other adults do recognize the importance of play in children's lives, they rarely think about it as a developmental phenomenon that follows an orderly, sequenced growth process similar to the processes of cognitive, language, moral, social, emotional, physical, or gender/sex role development. They often do not evaluate home, school, community, or cultural factors that can promote or hinder play development. Nor do they think about how their actions may influence its development. Thus, they may dismiss play as something that need not concern them.

Suggestions for Further Reading

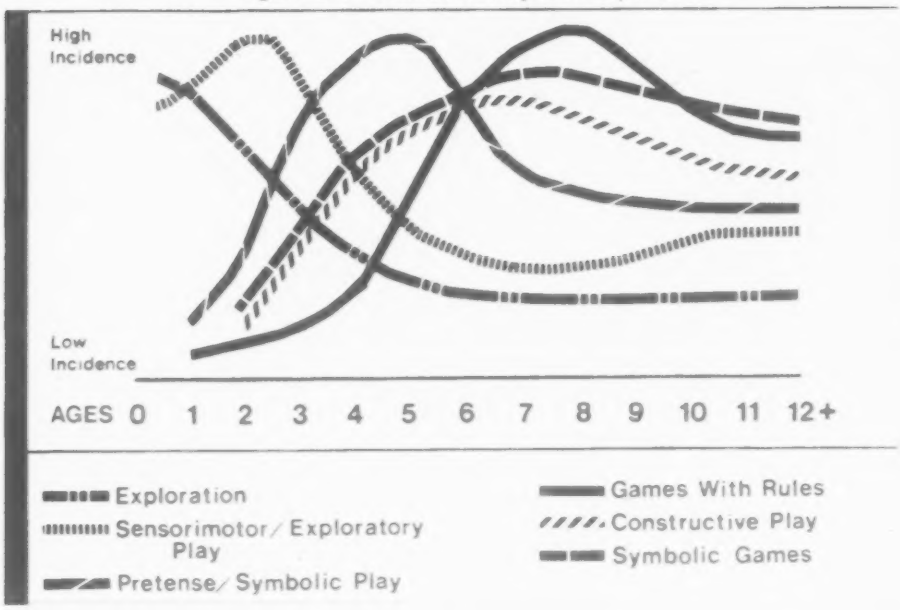
Bruner, J. S., Jolly, A., & Sylva, K. (Eds.). (1976). *Play: Its role in development and evolution*. New York: Basic Books. Contains seminal articles, both classic and recent, that explore characteristics of animal and human play.

Herron, R. E., & Sutton-Smith, B. (1971). *Child's play*. New York: Wiley. Gives a range of perspectives on the study of play, including psychoanalytic, learning, cognitive, and ethological.

Rubin, K., Fein, G., & Vandenberg, B. (1983). Play. In E. M. Hetherington (Ed.), & P. H. Mussen (Series Ed.), *Handbook of child psychology. Vol. 4: Socialization, personality, and social development* (pp. 698-774). New York: Wiley. Summarizes the current research on play from the psychological perspective.

Schwartzman, H. B. (1978). *Transformations: The anthropology of children's play*. New York: Plenum Press. Provides an overview of the study of play from the anthropological perspective.

Figure 3-1 • Trends in Play Development



Explanation of figure code

Exploration: This begins in early infancy and continues throughout life when new physical and social environments are encountered. Sensorimotor exploration becomes less observable, with more visual inspection, talking and question asking and verbal rule-seeking substituting for direct physical manipulation. Exploration is a life-long activity, although modes of exploration change and amount of time devoted to exploration diminishes with experience.

Sensorimotor practice play: This begins during the second quarter of the first year of life and continues as the prime mode of play in infancy and early toddler years. It continues throughout life when new skills are being learned, when physical or mental mastery and coordination of skills are required for effective performance of games or sports (e.g., playing baseball), or when consolidation of specific learning skills is desired (e.g., manipulating computer programs).

Pretense symbolic play: This begins in the last quarter of the first year of life. Overt manifestations reach a peak in preschool through kindergarten years. Although elementary age children still engage in overt symbolic play, especially in non-public environments (at home or in outdoor afterschool play settings), their symbolic play begins to change character by becoming more "miniaturized," with small objects representing symbolic actors (e.g., paper dolls or toy soldiers); "abstracted," with ideas and language substituting for physically observable symbolic actions (e.g., writing secret codes); and "socialized," with redefinitions of appropriate settings or labels for playing actions (e.g., performing in "skits").

Games with rules: These begin with infant participation in adult-initiated, one-rule gamelike reciprocity play. Precursors appear in toddlers' spontaneous one-rule social reciprocity games. During preschool and kindergarten simple rule games, usually those previously adult-initiated, are observed during spontaneous play. From these beginnings, games with rules increase in quantity and complexity during early elementary years and reach a peak in the middle elementary years. In later childhood they change character similarly to the way symbolic play changes; i.e., become "miniaturized" into board games, "abstracted" into paper and pencil or guessing games, and "socialized" into sports and other formal rule-driven games.

Constructive play: As sensorimotor/practice play wanes and symbolic play increases, constructive play, which combines physical/motor repetitive activity with symbolic representation of objects and ideas, becomes a major play mode. Although concrete experiences are represented in constructions of young children (i.e., building a block "house"), older children begin to represent abstract concepts in their constructive play (i.e., painting what "war" or "peace" looks like), and these behaviors continue into adolescence and adulthood, although they may then be called art, craft, or construction rather than play.

Symbolic games: Although many early games have symbolic elements and much symbolic play has gamelike rules, during elementary age symbolic games become a prime mode of play. This type of play combines the games with rules structure with symbolic or pretense content. The rules of symbolic games make sense only within the play frame of pretense. Symbolic games are popular throughout adolescence and adulthood. The basic structure remains the same but the symbolic content is that which is relevant for each age, sex, or cultural group (e.g., Dungeons and Dragons, Monopoly, chess).

Note:

Adult festivals, craft shows, parades, pageants, fairs, performances, rituals, and contests combine elements of these various types of play. The means/ends distinction is blurred and the identified ends usually have symbolic meaning rather than realistic meaning. They include the qualities of playfulness: positive affect, exaggerated motor or verbal signals, suspension of reality, voluntary control, and internal motivation, although they are usually not labeled as play. If adults view play as a developmental phenomenon, however, they will be concerned with its development in childhood and will give attention to the factors that can enhance or limit its full expression. Also, if adults are aware that play is not just a childish phenomenon but that it is transformed into other ludic forms in adult life, they will be better able to find the "player" in themselves and to relate their playful experiences to the play of children.

Essay: A Mental Image—A Question That Remains Open

Constance Kamii

Following is a typical "story" problem in math: "Johnny had 15 marbles at the beginning of a game but had only 10 at the end. How many did he lose?" When children read such a problem, they must evoke mental images of Johnny and his marbles to understand the situation depicted. This evocation of objects and events that are not present is known as representation. When young children begin to read, ability to evoke mental images may not seem essential, since their books usually have pictures. As pictures decrease in number, however, it becomes clear that children must be able to evoke mental images of people, objects, and actions to understand the events described with words.

Educators generally assume that mental images are a continuation of visual perception, but Piaget (1962) disagrees. Since the origin of the mental image is not well understood, I would like to sketch highlights from *Play, Dreams, and Imitation in Childhood* to clarify the nature of the mental image and raise a question about classroom practice.

All babies' thinking begins by being limited to the world of objects that are immediately present. During the second year of life, however, children become able to think about objects that are absent from their perceptual field. They thus accomplish an enormous transition from the sensorimotor intelligence of here and now to representational intelligence that extends their universe in space and time. How do they make this transition?

It is necessary to go back to the first week of life to answer this question. To take babies' knowledge of their bottle as an example, infants begin by not knowing that there are objects in their environment. Their knowledge of the bottle is limited to what they can know with their mouths during the time their mouths are in direct contact with the nipple. If their eyes are open, they get only impressions of colors. If we made the baby touch the bottle with his or her hand, the hand would remain passive without any accommodation to the bottle, and the baby would certainly not make any relationship between what he or she knows with the mouth and what he or she can know through the sense of touch or vision.

Later, the baby begins to construct the bottle in his or her mind by coordinating what he or she knows by sucking milk, looking at the object, and touching and

holding it. The construction of the object is beyond the scope of this paper; the point I wish to emphasize here is the active nature of babies' construction of their knowledge of each object. They accommodate their schemes actively to objects, and this activity results in the mutual assimilation and accommodation of previously isolated schemes, such as those of sucking, looking, and grasping.

When the baby has finally constructed some knowledge of the bottle by about 6 months of age, this knowledge is limited to the time when the bottle is actually present. The bottle does not have a permanent existence for babies until they have constructed object permanency. Object permanency is both the result of the baby's mental activity and a necessary condition for representation.

The transition from sensorimotor intelligence to representational intelligence can be found toward the latter half of the second year, when children begin to reproduce their sensorimotor schemes outside their usual, practical contexts. To refer to the example of the bottle again, babies begin to pretend to hold a bottle, tilt their heads back, and pretend to drink milk through the nipple. Since this behavior takes place without the presence of a real bottle, representation can be inferred from it. After the appearance of representation, pretend play becomes a major activity of the child for a few years.

The original French title of *Play, Dreams and Imitation* translated as *The Formation of the Symbol in the Child: Imitation, Play and Dreams, Images and Representation.* As this title suggests, the significance of pretend play lies in the transition from sensorimotor intelligence to representational intelligence. The child who has become able to pretend to drink out of a bottle can be said to have a mental image of the bottle. This mental image is a continuation not only of a visual scheme, but also of all the other schemes through which the baby came to know the object. In short, the mental image is formed when the child thinks about an object, and this thinking is done not just visually but with all the motoric schemes involved in the child's knowing of the object.

There is complete continuity from sensorimotor schemes to representation with mental images. The image is at first not dissociated from sensorimotor schemes, and the child can think about the bottle only while pretending to drink out of it. Later, however, the child becomes able to evoke the object (i.e., to think about the object) before externally engaging in make-believe behaviors. The proof is that the child begins to announce what he or she will pretend to do before doing it. When children can make a doll drink milk out of a bottle, it can be said that their mental image is now dissociated from the sensorimotor schemes.

Piaget called the toddler's pretend play *symbolic* play (rather than *dramatic* play) because the child engaging in pretend play is using his or her own body to externalize

the mental image. Children can also externalize their image with other instruments such as crayons and play dough or use an object to represent another object. For example, when children use a cylindrical block to represent (i.e., symbolize) a bottle, they are assimilating the block to their scheme (i.e., mental image) of a bottle. All these symbolic behaviors are made possible by the child's mental image.

The question that naturally follows is why symbolic play is such a big part of young children's lives. Piaget's explanation is that in symbolic play children relive their experiences, thereby assimilating reality to their way of thinking, their desires, and their interests. An analogy may be adults' daydreams. When we daydream, we relive our experiences, think about them, and try to master and understand them better. Children's understanding of reality likewise becomes better organized and more meaningful, and their images become more accurate as they engage in symbolic play over many years.

There are personality differences in symbolic play. Some children engage in it from morning to late afternoon at child-care centers, while others seldom pretend to do anything. There are also socioeconomic class differences in level and frequency of symbolic play (Smilansky, 1968). Lower class children's symbolic play is both less frequent and less elaborate. My question is this: What should educators do, if anything, beyond valuing children's symbolic play and providing materials in the classroom such as dolls, plates, and dress-up clothes?

Early childhood education texts usually do not distinguish between *symbolic* play and *dramatic* play, but I think the two are very different. In symbolic play, children externalize their own mental images of their own reality. In dramatic play, by contrast, they dramatize stories written by someone else. I have no doubt about the value of dramatizing stories in the classroom because dramatization helps children better understand the stories by externalizing their ideas of the events in them. Children's externalization of their own ideas about their own experiences, however, seems more problematic.

The distinction between symbolic play and dramatic play leads to very different principles of teaching. Writing about sociodramatic play without differentiating it from symbolic play, Smilansky (1968), for example, suggests "guidance in the techniques of play" (p. 87), such as "interact[ing] with the child from inside the play" and "directing the play from the outside." An example of interacting

When we daydream, we relive our experiences, think about them, and try to master and understand them better. Children's understanding of reality likewise becomes better organized and more meaningful.

from inside the play is the teacher acting as a nurse saying to a child who is playing a mother, "Mrs. Ohajon, here is the medicine" (while pretending to hand her something). "Give it to your baby twice a day. Now call the cab to fetch you . . . " (p. 102). An example of directing the play from the outside is suggesting to the child, "Let's take your baby to the clinic" and saying to another child acting as a nurse at the clinic, "Here is Mrs. Mizrahi with her ill baby, can you help her . . . ?" (pp. 101-102). Such interventions may improve children's techniques of sociodramatic play. However, when our aim is to strengthen children's mental images and understanding of their own reality, we refrain from this kind of intervention.

When we understand the nature of symbolic play, we also become careful not to impose our adult notions on children's pretend play. For example, if a child walks out of a pretend store without paying for the merchandise, we become careful not to teach him or her at this moment that one must pay for one's purchases. We also become careful not to impose our ideas after each field trip because young children experience a reality that is different from ours. For example, after an elaborate trip to the airport including a visit to the cockpit of an airplane, one group of children was interested only in acting out the way they flushed the toilet with a foot pedal!

Ability to evoke mental images facilitates reading comprehension, writing, and understanding of "story" problems in math. The links among these abilities and symbolic play are complex and not well understood. It seems desirable to study symbolic play in depth and its relationship to field trips, other kinds of play such as physical knowledge activities, social-economic-cultural backgrounds, and the subsequent development of academic abilities that require the evocation of mental images.

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Essay: Moral Development in Play

Rheta DeVries

Social play is a medium for moral development because children have opportunities for decentering—recognizing and taking account of the behaviors and psychological states of others (that is, their desires, feelings, ideas). Inevitably, conflicts arise, and children must cope with opposition. Interpersonal conflicts of all sorts are an important part of a constructivist program of education because children are forced (sometimes painfully) to confront the opposed behaviors of others. With sensitive teacher guidance, children can begin to take account of the opposed desires lying behind opposed behaviors, and develop methods of cooperation—of coordinating their desires with those of others.

To test the hypothesis that cooperative teaching promotes children's social-cognitive development, Goncu and I compared the interpersonal negotiation strategies of pairs of 4-year-olds from constructivist and Montessori classrooms in a situation where they played a game without a teacher. Using a coding manual developed by Selman and his colleagues, each interaction could be characterized and scored at a developmental stage from 0 to 3. While behaviors at stages 0, 1, and 2 were found in both groups, Montessori children had significantly more level 1 interactions in which they expressed a one-way understanding—only the needs or wishes of the self. Constructivist children had significantly more level 2 interactions in which they expressed awareness of the other as planful and having feelings, opinions, and behaviors that must be taken into account. Within conflict segments (perhaps the real test of social-cognitive competence, when self-interest is threatened), Montessori children had significantly more level 0 behaviors in which they expressed raw will (for example, grabbing, hitting) without any reflection on the other's point of view. No differences in occurrence of level 1 behaviors were found, but constructivist pairs had significantly more level 2 behaviors. The findings of this study suggest that constructivist teaching fosters children's progress in sociomoral development.

Consider the following example of a play interaction that gives us insight into this process. Two 5-year-olds, Yousef and Christopher, both want to be first in a game of Concentration. In this situation, occurring at the Human Development Laboratory School at the University of Houston, competing clearly depends on successfully achieving cooperation—

agreeing upon a rule, abiding by it, and accepting its consequences.

T (Ms. Rebecca Krejci): Who should go first?
Y: Me.
C: Me.
T: You both want to go first.
Y: Bubble gum, bubble gum . . . (Begins rhyme, to himself and Christopher alternately.)
C: I don't like to do "Bubble gum, Bubble gum."
Y: Let's take a vote.
C: No, there aren't enough people who want to vote.

The moral atmosphere of the classroom is reflected in Yousef's response to this conflict situation. Teachers had worked hard to give children methods of settling disputes through the use of impartial procedures such as voting and rhymes that designate players successively and accord a privilege to the last player designated. Yousef's practical reasoning is thus above a bald insistence upon what he wants. Christopher, too, focuses on the method for deciding rather than just on what he wants. The teacher moderates to help keep the discussion going.

T: O.K. So far we've talked about "Bubble gum, Bubble gum" or voting, and you don't like either of those. What do you think, Christopher?
C: I think that I'll just pick who goes first.
T: Yousef, do you like that idea?
Y: No.
T: No?
C: I'll just pick.
Y: No, I said that first. And then you came and speaked when I was speaking. So, I'm just gonna do "Bubble gum, Bubble gum."
C: O.K., but that sure does disturb me.

Christopher's insistence on what he wants brings another impasse, with each child repeating his solution. Christopher grudgingly agrees to go along with Yousef, but expresses his unhappiness. The problem for the teacher is to respect Christopher's feelings, but try to get him to consider the idea of fairness.

T: Do you think "Bubble gum, Bubble gum" would be all right with you, Christopher?
C: It's not all right with me, but if he wants to do it (*shrugs*).
T: Do you think your picking would be fair, Christopher?
Y: No, I don't think Christopher should pick.

With the impasse reasserted, the teacher continues to give the responsibility to the children for coming to agreement, but upholds the value of mutual agreement. By respecting the ideas of both children, she expresses the idea that conflict resolution should consider everyone's feelings.

T: Let's see if y'all can decide on something

that you both like.

C: I just wanta' pick somebody. I don't like "Bubble gum, Bubble gum."

Y: All right. (*He decides to try voting.*) Who says to do "Bubble gum, Bubble gum?" (*He raises his hand.*)

C: Nobody. I don't.

Y: (*Turns to teacher.*) Do you wish to do "Bubble gum?"

T: Well, if I vote, then whatever I say will happen because you both disagree.

C: It's O.K. with me if you do whatever you want because you're the adult.

Christopher's response is at Kohlberg's Stage 1 because it identifies fairness with whatever the adult authority wants. The teacher tries to move the children's thinking beyond this level by upholding the idea of the importance of agreement among players.

T: But y'all are playing the game, too. I think y'all should decide, too.

C: Well, I'd just like to pick.

T: Do you have any other ideas, Yousef?

Y: Well, you need to vote, too.

C: Well, Yousef, the only thing that doesn't disturb me is "Eeney, Meeney, Miney, Mo." You can say that, but not "Bubble gum, Bubble gum."

Y: O.K. Eeney, meeney, miney, mo. Catch a tiger by the toe. If he hollers, let him go. Eeney, meeney, miney . . . (*stops as he realizes that "mo" will land on Christopher*). Wait a second.

C: No, no. You can't just stop.

Y: Wait. Let me pick somebody now.

Yousef's acceptance of a procedure agreeable to Christopher as well as himself turns out to be rooted in the expectation that a rhyme procedure will get him what he wants. When he miscalculates, it is Christopher's turn to defend the rhyme procedure when it suits his self-interest. The teacher tries to uphold the agreement made between the two boys on using a rhyme procedure to resolve the conflict.

T: How did that work out? What happened with "Eeney, Meeney, Miney, Mo?"

Y: He was gonna get first.

C: Wait, now let me do it. (*Repeats the rhyme and "mo" lands on the teacher.*) You can go first.

T: That's what you want me to do?

C: Yeah.

Y: Yeah.

Letting the teacher go first is an acceptable solution to both boys, so the teacher goes first.

Such is the stuff of which early sociomoral development consists. Even though the eventual agreement in this situation is based on what Kohlberg (1976) would call Stage 1 deference to the teacher's authority, it is a solution arrived at through a process of exchange of viewpoints and autonomous decision making of the two children.

Sometimes educators think that children at Kohlberg's (1976) Stage 1 require the use of firm authority and discipline. Even

at Stage 1, however, children are open to exchange and agreement seeking, exchange that fosters movement to the next stage.

Piaget viewed conflict, both intra-individual and interindividual, as one of the general mechanisms of the construction of knowledge and intelligence. It is intraindividual conflict that is a particular source of progress in Piaget's dialectical constructivism. He further explicitly stated that social interaction is necessary for the development of logic. Interindividual conflict in play can provide the context for intraindividual conflict and efforts that lead to new social-cognitive adaptation.

Teaching in terms of conflict rests within a general conceptual framework emphasizing cooperation. Conflict is cooperative in the sense that individuals think or "operate" in terms of one another. The constructivist teacher practices cooperation with children—for example, by consulting them, helping them listen to one another, giving them the opportunity to propose solutions to conflicts, and upholding the value of mutual agreement, as shown in the play example above. This teaching attitude is in contrast to an authoritarian attitude in which the emphasis is on obedience. Piaget hypothesized that the first of these attitudes (that is, autonomous or cooperative) promotes children's development and that the second attitude (heteronomous or coercive) retards their development. Autonomy defined as self-regulation is at the heart of Piaget's theory of both intellectual and sociomoral development. When teachers consistently promote children's autonomy in play situations involving interpersonal issues, children make progress both in sociomoral and intellectual development.

Essay: Toddlers' Play and Sex Stereotyping

Beverly I. Fagot

From an early age, boys and girls engage in different styles of play. Block (1983) suggested that differences in early play styles lead to differences in intellectual and emotional development. Girls utilize existing cognitive and social structures that are modified by incremental steps. They are given toys that encourage the learning of rules and imitation of behaviors and are encouraged by adults to keep in close contact. Boys, on the other hand, are given toys that force them to develop their own schemas and to find out how the toys work. Boys are also encouraged to engage more in activities with peers and not with adults. Block hypothesized that, as a consequence of these differences in play styles and differences in interactions with adults and peers, girls' development is more stable than boys because girls can draw upon adults for help. Boys' development is less stable because they do not use adult help as effectively, and are forced to restructure more often and produce their own unique solutions.

Are there data to support Block's hypothesis, or is it merely intriguing theorizing with no real-world foundation? For the past 15 years in the University of Oregon Psychology Department Child Laboratory, my colleagues and I have been studying just this question. What evidence is there for differences in play styles of boys and girls from 1 to 5 years of age? When do such differences begin? How do the reactions of teachers and peers help initiate boys' and girls' differences in play styles? Finally, is there any indication that such differences in play styles have the kind of long-term consequences for social and emotional development predicted by Block?

The first question is the simplest to answer. Yes, there are differences in play styles of boys and girls, and the differences have not really changed over the last 20 years. Girls engage in more doll play and domestic rehearsal, more art activities, and dressing up. Boys play more with transportation toys, with blocks, and with carpentry toys. Boys also engage in more aggressive activities and play more in larger peer groups. Girls spend more time talking and spend far more time with teachers than do boys (Fagot, 1984a; Fagot & Patterson, 1969). As they grow older, both boys and girls increasingly spend more time in same-sex play groups and actively avoid the opposite sex (Fagot, 1985; Fagot & Patterson, 1969).

When do sex differences in play styles begin to appear? In our laboratory, we do not see differences in play styles in 12- to

18-month-old boys and girls, either in terms of toy choices or interactive styles. A group of children was brought into infant play groups when they were 12 to 14 months of age. They were observed over a period of three months, and two styles of interaction were observed: assertive behaviors (e.g., hitting, pushing, shoving, grabbing for another's toys) and communicative behaviors (e.g., gesturing, babbling, or talking). There was no difference in the occurrence of these behaviors between boys and girls. The adult caretaker's reactions to the child's initiations, however, was highly dependent upon the sex of the child. If a boy produced an assertive behavior, he received a response from the teacher 41% of the time, but if a girl produced the same behavior, she received a response from the teacher only 10% of the time. If a girl produced a positive type of communicative behavior, she received a response from the teacher 65% of the time, while a boy initiating the same behavior received a response 48% of the time. On the other hand, boys who demanded attention negatively by whining, crying, screaming, or by pulling at the teacher received attention 55% of the time, while girls performing similar acts received a response only 18% of the time.

When we looked at these same children approximately one year later, we found sex differences in the children's behavior. Boys performed more aggressive acts, while girls spent more time talking and interacting with the teachers (Fagot, Hagan, Leinbach, & Kronsberg, 1985). We found that sex differences in play styles and in interactive styles began to appear from 20 to 24 months of age and were well established by the time the children were 36 months old.

We found that sex differences in play styles and in interactive styles began to appear from 20 to 24 months of age and were well established by the time the children were 36 months old.

In a study with slightly older children (Fagot, 1985), I found that girls changed their behaviors when either teachers or other girls reacted to them, while boys reacted only to the responses of other boys. In addition, girls' peer groups tolerated play with many more play materials than did boys'. Boys' peer groups responded negatively to boys who played with "girls'" toys and to boys who played with girls, so that boys were being given constant feedback on both appropriate play styles and appropriate playmates. Girls were given feedback on appropriate playmates only. When we combine this with the tendency of boys to ignore teacher feedback and to spend much less time interacting with teachers than did girls, we start to see that, indeed, the same play group or preschool environment does not provide boys and girls the same socialization experiences.

Finally, is there any

indication to support Block's ideas that differences in intellectual and emotional development arise from these early differences in play and interactional styles? So far, such data are only correlational. We know that boys lag behind girls in their ability to deal with school-like tasks and that they show more emotional problems during early childhood. Also, boys who show extreme aggressiveness and girls who show extreme dependency as young 2-year-olds continue to have the same problems for as long as two years (Fagot, 1984b). The relation to intellectual development is less well documented, but girls who show extreme feminine play preferences are less likely to do well in math and science (Fagot & Littman, 1975). Our conclusion is that children should be encouraged to try out as many play behaviors as possible without regard to sex, and that teachers need to examine their response styles very carefully to avoid reacting to children in ways that perpetuate stereotypes.

Essay: Play and Gifted Children

Annemarie Roeper

Play has a special place in the process of growth for the young of humans and many other animal species. It takes many forms; it has many purposes. Play can be one of the first tools for learning because it fosters active processes of seeking knowledge about the world. It also involves ownership; play is owned by the persons involved in it. It serves to create a sense of mastery, without the pressure of striving for success. Play helps children develop strategies for being alone as well as for getting along with others; it also promotes academic and physical skills. In all of these ways, play has special meaning for the gifted. I would like to concentrate this essay on a discussion of the impact of play on the emotional and social development of gifted children.

The significance of play is different for the gifted than for others because gifted children have some different emotional and intellectual characteristics. One of the consequences of their unusual characteristics is a vague feeling of not belonging. Even very young gifted children feel separate from their peers and perceive themselves as outsiders. They often have this feeling in relation to their teachers and even sometimes in relation to parents. This feeling is particularly difficult for young children who cannot put it into words but who just have feelings of discomfort.

Another outstanding characteristic of most gifted children is their creativity. They seem to overflow with imaginative ideas; they often do amazing things with their hands and they think of alternative ideas and activities that no one has thought of before. They will do this thinking at any time, in any place (e.g., even in school). Their inner life, exemplified in their daydreaming, often distracts them from the required activities at hand. Daydreaming is considered by many adults as an undesirable habit. For many gifted children, however, it is a necessity. It is the only way they can cope with their creativity and their imagination.

They also have insatiable curiosity about many things. They want to know and to understand everything, even in topic areas where necessary adult guidance and help is not available. For example, even the most capable young readers may not have access to adult libraries where the information on the subjects of their interest is kept. This sometimes forces them to think and dream by themselves. Because imagining is more acceptable to most adults if it is accompanied by play activity with objects, children take their animals or other toys and play with them. In play they

express their love, anger, power, and imagination. All of this expression is legitimate and even supported by adults when it is done in the context of play.

Many gifted 3- and 4-year-olds have one to three imaginary companions who are their closest friends and playmates. This is especially common for children who do not communicate well with others. The imaginary companion serves many functions. Often they represent the "bad" side, the angry side in children. If children do something their mothers disapprove of, they can say that they did not do it but the imaginary companion did it. This is particularly important for those who have highly developed consciences, which is a common characteristic among the gifted. These highly developed consciences exist at an age when the children are not really ready to live within the demands of that level of conscience.

Gifted children often do not give themselves permission to have any negative feelings (e.g., to be jealous of the baby). They might be overcome with unbearable guilt if they hit another child. But if Co-Ra, the imaginary companion, hits another child, the real child can be excused. (These companions often have strange names.) It is important that gifted children learn the line between reality and fantasy and receive help in dealing with their perfectionism and guilt. Pretend play allows the safe expression of feelings within a clearly distinguished "not-real" framework.

Another characteristic of gifted children is their sense of being powerless. They are keen observers and they have a well-developed sense of justice. They see what is wrong in the world around them and often feel strongly that there is nothing that they can do about it, at least at their young age. In the real world, they feel unable to make a difference, but in play they can become very powerful, pretending to be the boss and changing those things that they don't find fair. They make things happen the way that they would like them to be and create a world that is acceptable and dependable and on which they can make an impact.

For gifted children, even more than for other children, the line between play and work or learning hardly exists. Play, work, and learning serve the same purpose: mastery. These children have a desire to be in charge of their destinies, to master the world, and to learn all the skills for meeting self-imposed challenges. These desires motivate their activity. They play what they learn and they learn what they play. It is clear that the difference between play and work has been created by

For gifted children, even more than for other children, the line between play and work or learning hardly exists. Play, work, and learning serve the same purpose: mastery. These children have a desire to be in charge of their destinies.

adults, not children. Play and work also serve the purpose of helping gifted children develop their self-image. The self-image is the vision that children have of their own unique personality; it is the way they feel themselves to be. Playing helps gifted children integrate and expand their sense of self as they react to and relate to parents, teachers, playmates, and the larger social and physical world.

Much of the time, in their social world and interactive relationships, children have to subordinate their needs to rules and regulations of others. These rules and regulations do not always fit children's needs but in their play they can make them fit. In play, aggression and hostility are allowed, as long as it is in pretend (e.g., in roles as witches or space invaders). Playing with peers in sociodramatic play develops gifted children's social skills and the tolerance they need to live with others who may not have the same view of the world. These skills are often more difficult for gifted children because they have different interests and conceptions of the world than their peers. Thus, play is particularly helpful for them in understanding and relating to their social world.

Competition plays a different role for them also. They often have goals that are not shared by others; that is, they "follow their own drummer." Competition forces them to pursue the same goal as others and therefore they are not usually interested in competing. If they do compete, they have a very hard time accepting the fact that they might lose. In playful competition, however, losing is more acceptable and they learn something about how to lose and to give up some of their need for perfection. Play and recreational activity are important for gifted people of all ages because they have a tendency to put themselves under great stress. When they set goals for themselves that are hard to attain they may feel burdened because they are so sensitive and aware of problems that others hardly see. Often they feel the social environment is unresponsive.

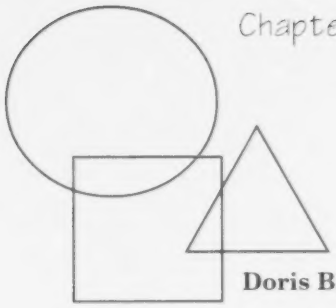
Gifted children are often "loners," especially if they have no access to children with similar skills and interests. They can be helped by play because learning to relate to other children in at least one area of their lives can be very important. Even though they may have little in common with the neighborhood children, they may share one interest (e.g., playing baseball). Play then is a vehicle that builds a bridge between the gifted and other children.

Many gifted children seem to learn with their whole bodies, and all their senses seem intensely alive. Often their great *joie de vivre* and outstanding sense of humor are expressed in their physical and verbal play. The tension release of physical play and the sense of power that comes with increased physical skill contribute to their well-being. They are also especially adept at "playing with words"; in fact, an early evidence of their cognitive development is their special ability to use language in riddles, jokes, puns, and other playful

ways.

Gifted children are fascinated with games of all sorts because they can use their mind safely in games. A case in point is the interest of older gifted children in games such as Dungeons and Dragons. Many adults are amazed at the concentration and accomplishment that grow out of symbolic games such as Dungeons and Dragons. Children who may not participate in school, or at least are not motivated to do much routine work, will cover pages and pages with original creative writing and thinking, do math that no one knew they were able to do, and get along with other children in a much better manner than they exhibit in other settings. All of these behaviors appear within the context of this game. Gifted children's fascination with fantasy games seems to originate from an inner need for integration of their abstract conceptual abilities and their desire to control their world.

One of the greatest misunderstandings of the needs of the gifted is the belief that their time should be highly structured and directed, rather than "wasted" on play. Adults sometimes think that gifted children need less playtime than other children. In reality, depriving them of play removes them from one of their greatest resources for growth and well-being.



Chapter 4

Using a Schema for Play and Learning

Doris Bergen

Because there are numerous activities that may be labeled play, educators and other practitioners who wish to plan for play as a learning medium for children must be consciously aware of the attributes that distinguish these various activities that are called play. They also need to understand the processes that are involved in learning and they must be adept at selecting play experiences that will help children to meet learning goals. This chapter provides a schema that can assist educators in making distinctions and connections between play and learning.

First, the categories of behavior that educators usually call play and those they usually consider not to be play are discussed. The major learning processes that occur in educational environments are also defined. The schema for play and learning, which demonstrates the potential complementary relationships between various types of play and the range of learning processes, is presented, and examples of the application of the schema are given. A brief overview of factors in the physical and social environment that influence play and learning is also included.

In order to use play effectively as a curricular tool, adults must have an intellectual understanding of the connections between play and learning. In addition, they must have personal experience of the power of play to enrich their own lives. Play has value throughout life and serves many purposes for adults that are similar to those for children. Those adults who are in touch with their own playful qualities and who value the play potential that all human beings have will be more successful in fostering children's play development than those who see play as an immature, inconsequential, and limited activity confined to the less powerful members of society. The schema for play and learning can enhance understanding of the play of adults as well as children, and can facilitate planning for the use of play as a learning medium at any stage of life.

Categorizing Play and Not Play

Theorists and researchers who have studied play usually define the term play to mean only those behaviors that are child initiated and that involve cognitive assimilation rather than accommodation processes. Fein and Schwartz (1982), for example, indicate that assimilation dominates accommodation in play and that, therefore, in play the challenge is not "presented by the environment nor . . . sought in the environment." Rather, it "represents challenge produced by the child" (p. 96).

Similarly, Hutt (1971) distinguishes between exploration and play by pointing out that in exploration children discover what objects do, but that in play they discover what they can do with objects. Some researchers also distinguish play from games because, although both are rule governed, the function of play is for the satisfaction of playing, while the function of games is "to compete to win and to achieve some specified goals" (Rubin, Fein, & Vandenberg, 1983, p. 728).

Educators, on the other hand, often term many types of activities play. In their definition of play they may include activities that are freely chosen by children and ones that require all to participate. They may also call many games by the name play, including ones directed by children and those that are directed by adults; those that have a low level of stress on winning and a minimal risk of failure; and those that have high levels of competition and include judgment of success or failure. Thus, educators' definition of play may include behaviors with accommodative as well as assimilative aspects.

Although play theorists and researchers may deny that some of these behaviors are play, this broader definition of play has been useful in educational practice. How educators can translate the findings of research and the logic of theory into educational practice continues to be a question of major importance because the applications are not usually obvious or direct. For example, although research findings indicate a relationship between pretend play and cognitive growth, the educational application of this finding is unclear. Should educators provide space, materials, and time for children to engage in pretense? Should they provide adult or peer modeling of pretend behaviors? Or should direct teaching of how to pretend be included in the curriculum?

In planning ways to translate research and theory into practice, educators must also be careful that they do not turn play into not play (i.e., work). The schema for play and learning, first developed for *Play As a Learning Medium* (Sponseller, 1974), has been found useful by many educators for evaluating types of activities called play and for determining which types of educational environments are most likely to elicit and develop various types of play and learning. The schema makes explicit the fine line between play and work and the distinctions among various learning processes that relate to the types of play that are planned as curricular tools.

A basic premise of the schema is that play includes both observable and nonobservable behavior. The study of play as an observable phenomenon has provided the substance for most of the information in this book. However, play in its broadest sense is not always observable. All people have engaged in mental play—playing with ideas, creating scenarios with action and conversation, and imagining the unknown. Although these activities are not usually labeled play and are not the subject of much research, some nonobservable behaviors have the essential elements of play as defined by Neumann (1971): internal control, internal motivation, and internal reality.

Watching others play (i.e., onlooking) or engaging in other seemingly passive behaviors, such as television viewing, may include elements of mental playfulness that are not observable. Some children may appear to be uninvolved in play, but educators need to be aware that children who are watching other children play may be engaged in

cognitively playful activity and that their later observable play behaviors may reflect learning achieved during these onlooking periods. For example, studies of television viewing show that preschoolers' themes of pretense reflect the content of the programs they have watched (James & McCain, 1982). Many children silently watch peers sing or play games at school and subsequently exhibit those same playful behaviors at home. Perhaps they are playing "inside their heads" when they are observing others play. Chaillé and Young (1980) point out the importance of this play as well as the problems involved in studying it.

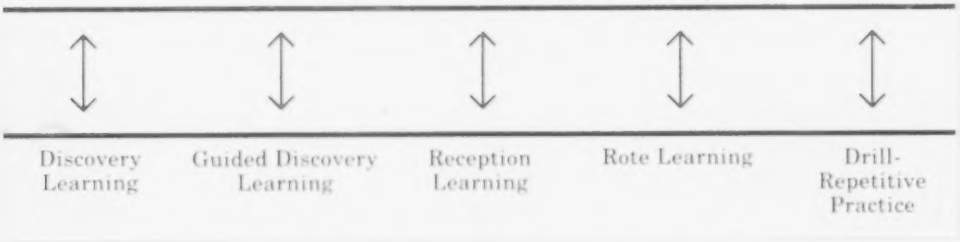
The categories used in the schema for play and learning are based on the following attributes (Neumann, 1971):

1. Degree of internal/external control (i.e., the amount of choice children have about what activities to engage in, where and how to do them, and who will interact with them).
2. Degree of internal/external reality (i.e., the range of possibilities for children to bend or alter real conditions, take risk-free challenges and try difficult skills or fail without facing lasting consequences).
3. Degree of internal/external motivation (i.e., the level of opportunity for children to initiate, escalate, change, or withdraw from activity in response to their own optimal arousal needs).

The schema is an interrelated, two-level continuum ranging from behaviors having the greatest internal control component (i.e., child initiated) to those having the greatest external control component (i.e., adult initiated). Those with the highest internal control component have the least overt adult direction and those with the highest external control component have the most obvious adult (or societal) direction. The assimilative component is highest at the left (i.e., high internal) end of the continuum and the accommodative component is highest at the right (i.e., high external) end.

The play and learning schema is shown in Figure 4-1. The play/not play component ranges from free play to work. The learning process component moves from discovery learning to drill and practice.

Figure 4-1 • The Schema of Play and Learning



The five points on the play/not play continuum are as follows:

1. *Free play* has the greatest degree of internal control, reality, and motivation.

The player chooses whether to play, what to play, how to play, and when to play. The player also determines whether to play alone or with other players. The choice of which other players to play with is also freely determined. Free play has some external restrictions imposed by the physical environment—for example, block towers fall if not properly balanced—and by the player's physical or mental abilities, such as verbal skill or eye-hand coordination.

In an educational setting, there are also rules based on freedom within minimal externally imposed limits, such as a time span and a designated space in which to play. During free play, however, children are least bound by environmental constraints because they are operating in an assimilative mode. Although free play can occur in any environment, some environments promote a richer set of free-play behaviors than others. For example, a wider range and higher level of social and pretend play usually occur in settings where large equipment with many action options is located.

2. *Guided play* occurs within a loosely defined framework of social rules, requiring children to give some attention to externally imposed control, reality, and motivation.

Although the players continue to have a wide choice of play activities and the environment is still conducive to freely chosen play in which children can create their own challenge, more social rules regarding appropriateness of choices, safety, sharing, or motor constraints are present. Features of the physical environment may be more regulated than in free play. There may also be a specifically limited number of choices for play or children may be expected to engage in a specified number of play activities during a particular time period.

Adults monitor the play more closely and may step in often to redirect, present challenges, and provide materials. Although for long periods of time children may be operating in the assimilative mode, the guidance of adults sets limits that require accommodation as well. It may be necessary to adjust play to meet external realities and adult-determined rules. For example, a workbench for pounding and hammering play might be monitored closely by adults. Guided play with frequent adult restatement of rules for tool use would be appropriate with workbench materials. Adults may also encourage children to engage in social rather than solitary play. The design of the physical environment may be planned to provide most of the guidance for play. Specified rules may also be imposed by other players. The role of the adult is usually a more active one than in a free-play situation. What is called free play in preschool settings is often really a combination of periods of free play and guided play.

3. *Directed play* has many externally imposed elements that are defined by adults and the play is often led by adults.

Children may still have some opportunities to exercise internal control, reality, and

motivation, but only within the limits directly specified by adults. The appropriate range of behaviors is clearly directed by the adult leaders and enforced by both adults and peers. Game playing in most kindergarten and early elementary classrooms falls into the directed play category. Many group activities in the early education setting have playful or gamelike qualities in which the adult provides an initial stimulus such as a story or fingerplay.

In directed play, children do not usually have a choice about whether to play, what to play, how to play, or when to play. Everyone in class participates, there are constraints on what games can be chosen, adult-specified rules are enforced, and the time allotted for play is designated narrowly. For example, the adult may designate three educational games that can be played at the back table by no more than two people, after they have finished their workbook lesson. Or the entire class may play a symbolic game such as Dog and Bone or participate in a relay race. Children are not usually permitted to choose the other players, although at times they are allowed to choose their own partners or team members. Accommodation processes provide the basis for these activities, although within the play experience itself, the assimilative mode may be present for brief periods.

Children enjoy much directed play, particularly if it has a sufficient level of interest to be experienced as truly playful. But because activity ceases to be play when children have no internal control, motivation, or reality, the adult must choose directed play very carefully in order to preserve some elements of choice in spite of external parameters. Children must retain the desire to be involved in play and the ability to bend reality. The elements of the social environment in particular are crucial in determining whether children will experience directed play activity as playful. Conveying respect for children's differences, showing willingness to adapt or change rules, promoting a climate that minimizes risk and failure, and offering children choices can retain the essence of true play in directed play. Adults' knowledge of the developmental and learning levels of the children and their adaptation of directions to meet these levels is essential if these types of activities are to be correctly categorized as play.

4. *Almost play or "work disguised as play"* describes task-oriented activities that are not inherently playful but that can be transformed into directed or guided play activities if the potential for internal control, motivation, and reality can be tapped.

Educational settings in which basic skills learning is stressed may require a sizable portion of time for rote memorization, repetitive practice, and other work activities. Although many aspects of basic skills learning are learned well during free play, guided play, and directed play, educators often believe that some learning goals may require children to spend a certain amount of time on rote learning.

Educators who work in settings that require children to learn much rotely memorized information often devote a significant portion of their educational planning to making these tasks become "almost play." Singing an alphabet song to learn the alphabet sequence, playing a spelling game, or having an "addition facts race" are examples of work disguised as play.

Although it may be confusing to children to have these activities labeled as play, and although children may experience them as boring or fear inducing, this technique has long been applied in classrooms as a means of increasing repetitive practice and promoting learning of materials that children may have little interest in learning. Children are usually aware that these adult-imposed activities are not play and they label them work even though adults may have given them a playful sounding name (King, 1979).

How great a place these activities should have in educational settings is debatable. Children do seem to find some of them enjoyable and sometimes repeat them in their own free-play time. Rather than arbitrarily disguising this type of work as play, educators can discuss with children how work can sometimes be made more interesting by treating it as play and can allow the children to decide how they can do this. Since creating a challenge is something children know how to do, they can decide on playful ways to learn required tasks. However, they must have some internal control, motivation, and reality if children are to consider these activities play.

5. *Work* is activity that is engaged in to reach an externally defined goal and for which motivation is external. There is no opportunity to bend the reality of the work situation; thus work is totally in the accommodation mode.

Because much of children's time is spent in the assimilative mode, the line between work and play has always been difficult to draw. Indeed, one of the favorite lines of theorists of earlier times was "Play is the child's work." The distinction between work and play is a clear one, however, if the criteria of external versus internal control, motivation, and reality are applied. In work, children do not decide when to work, how to work, where to work, or what to work at. Moreover, if they attempt to take control and turn this work into play, adults are usually displeased (King, 1982a). Many educators believe that children should find all learning tasks playful while others believe that children should find out early that there will be times when they will need to work hard at goal-oriented tasks even if they do not wish to. Children can also learn that activities called work can be enjoyable and satisfying (King, 1982b, 1982c).

Labeling some of children's self-directed activities work is considered important by practitioners of some theoretical viewpoints. For example, the activities in the Montessori program are labeled work rather than play. In the definitional framework described here many of those activities would be labeled guided or directed play, because children have some internal control and motivation as they operate within the structured materials and environment.

In summary, researchers and theorists might draw the line between play and not play at a different point on a continuum than practitioners would.

Studies examining the characteristics of adults who are good problem solvers present evidence that adults are hampered in solving problems if they have had narrow fixed experiences with an object or have learned by rote.

Categorizing Learning Processes

How do human beings learn? Before educators can use the schema of play and learning, it is necessary to understand the range of learning processes that have been identified by theorists and researchers who have studied learning and cognitive development. Most learning theorists have rejected the idea that development of higher cognitive processes, such as problem solving, can be explained by simple reinforcement models of learning. These complex learning processes have internal control components and motivational complexities that make them similar to the components of play.

For example, Polya (1971, pp. 197-198), in his outline of the steps in problem solving, discusses the role of the subconscious in helping to solve difficult problems. During these "moments in which it is better to leave the problem alone for a while," ideas are mentally combined and recombined informally, and then "a bright idea appears and you solve the problem easily." This mental incubation process is internally controlled and motivated and has assimilative, as well as adaptive, qualities. Gagne's (1968, 1977) hierarchy of learning processes places problem solving at the highest level, requiring mastery and coordination of many other types of learning. Studies examining the characteristics of adults who are good problem solvers present evidence that adults are hampered in solving problems if they have had narrow fixed experiences with an object or have learned by rote a particular method for solving problems (Wason and Johnson, 1968).

Information processing theorists have been particularly interested in the cognitive processes of perception, memory, rule learning, problem solving, creativity, evaluation, and metacognition (i.e., thinking about thinking). Their work points to the complexity of these processes even in young children's thinking. Flavell (1976, 1977, 1981, 1982) has identified the metacognitive processes that are essential for higher order thinking. They include having the ability to activate cognitive rules and strategies; control distraction and anxiety; and monitor the solution process. Metacognition also entails flexibility of thought, a desire for an "elegant" solution and a belief that thinking can result in solutions (i.e. "faith in thought"). All of these abilities increase as children grow older and they are influenced by environmental factors. For example, exposure to events that challenge beliefs (e.g., predicting that objects will float or sink and observing what happens) may increase metacognitive development.

For the purposes of the schema of play and learning, the learning processes occurring in educational settings are categorized according to internal/ external dimensions of control, motivation, and meaning. The schema does not imply that meaningful learning cannot occur when children are in goal-oriented work settings. It does suggest, however, that play environments can facilitate certain types of learning and assist children in their construction of knowledge.

The range of learning processes that make up the points on the schema are as follows:

1. *Discovery learning* occurs through the spontaneous manipulation of the objects in the physical environment and through informal social interactions with adults and peers. Knowledge grows as these interactions are mentally organized.

Bruner (1966, 1979) and Piaget (1972) have stressed that cognitive development must involve discovery learning, in which children develop strategies for problem solving and receive feedback from the environment. The alternation of assimilation and accommodation that occurs in these interactions results in intellectual adaptation, which Piaget calls the construction of knowledge. He asserts that concepts cannot be given to children, but instead must be constructed by each person. If answers are provided to children or if children are forced to make quick, adult-defined correct responses, the concept development process is impeded rather than assisted. Discovery learning allows children the opportunity to generate their own concepts as they actively manipulate and interact with the environment.

2. *Guided discovery learning* has many elements of discovery, but the experiences are carefully structured so that certain discoveries are more likely to occur. Open-ended questions asked by adults channel the concept development process.

Guided discovery is often used in educational settings because, although discovery learning processes may eventually lead to a richer conceptual base, they also require longer time spans than may be available in school. Also, adults often have learning objectives that they want all children to achieve, but the discovery learning process may not lead all children to that objective at a particular time. Thus, some children may not discover the particular concept that educators identify as an important learning objective. Guided discovery learning can help children focus their activity and thought on a certain set of questions that can assist their construction of certain kinds of knowledge.

Often, guided discovery learning proceeds by the process called proleptic instruction (Wertsch, 1979), in which the learner performs after the adult informally models performance. This type of instruction involves mutual negotiation with a balance of observation and guided trials, primarily with the learner in the help-seeking role and the adult in the respondent role. Social and cognitive interactional systems developed between learner and teacher that allow the learner to define the task have also been called scaffolding (Hodapp, Goldfield, & Boyatzis, 1984; Wood, Bruner, & Ross, 1976). Teacher and learner interact to build the conceptual structure.

Guided discovery learning can also proceed through the structuring of the materials and equipment in the physical environment, with the cues for the direction for learning coming from these structures. Opportunities for both discovery learning and guided discovery learning are usually present in the same educational environment.

3. *Reception learning* is meaningful learning that occurs primarily through verbal means; either by adult instruction, by reading, or by discussion. In order to be meaningful, the learner must have a base of concrete experience that can be related to the verbal learning.

Ausubel (1968), who has described the reception learning process, states that discovery learning accompanied by concrete materials is important for young children

because they have not yet developed cognitive structures that can apprehend meaningful verbal learning. He agrees with Piaget that the verbal skill of young children sometimes conceals the fact that they lack sufficient concrete experiences to make verbal learning meaningful. Piaget has called these examples of using words without underlying knowledge "verbalisms." Much of what children repeat from television commercials falls in the verbalism category (e.g., "40% off the cover price," "shave incredibly close"). Ausubel contends that meaningful verbal learning, which he terms reception learning because the learner is able to receive it without having had immediate concrete experiences, is an efficient mode of learning for children once they are about 6 years old.

To Ausubel, verbal learning is meaningful when the cognitive structures are sufficiently developed so the information can be mentally organized or subsumed by the learner. Ausubel believes this occurs at about the same age (i.e., 6 or 7) that Piaget expects to find concrete operational thought. Some adult-directed activities can promote meaningful verbal learning at the preschool level as well if a base of concrete experiences is provided. If educators consistently assess children's experiential readiness level before providing directed verbal activities, they will be able to select those activities that will promote reception learning. For example, a trip to a fire station before reading about or discussing fire fighting might provide the needed experiential base for reception learning.

4. *Rote learning* is verbal learning that is not inherently meaningful but that may be assisted by memory strategies such as rehearsal, association, clustering, detecting patterns, and counting. Rote learning may later be used in the service of other learning or may be related to meaningful learning if the learner has the experiential base needed to transform it into knowledge.

Rote learning can either be verbal or motor learning. It is achieved through motor repetition or conscious efforts at verbal memorization. Because the segments of the material to be learned and/or the material as a whole do not have immediately relevant meaning, the learning occurs primarily by verbal or motor chaining (Gagne, 1968). That is, the elements are linked together by association in time, sequence, or by other arbitrarily imposed linkages so that they can be remembered. Often, the elements are not remembered if the sequence is broken or the elements are separated and put in other contexts. Research on memory indicates that young children's recognition memory is better than their recall memory but that neither type of memory is as efficient as that of older children or adults. Theorists believe this is because children have fewer cognitive units in which to store memories (Newcombe, Rogoff, & Kagan, 1977). Thus, young children are less able to make rote learning meaningful, even though they are adept at repeating strings of information they have learned in a rote fashion.

5. *Drill/repetitive practice* has no inherent meaningful elements and is difficult for children to relate to any meaningful experiences.

When learning is so removed from meaningful experience that the motivation for learning must come entirely through expectations of external reward or punishment, it

is reduced to what is commonly called by the pejorative name "drill." At some point this learning may be usable in relation to a meaningful activity. However, recall of the information is usually poor and understanding of the reason for learning it is lacking. Unless the learner can see the necessity for this repetitive practice in furthering desirable long-range goals, there may be negative side effects of reduced motivation for learning and interference with the development of metacognitive processes. Young children who learn multiplication or word recognition—or older children who learn algebra or a foreign language—by repetitive practice without connecting it to a meaningful mental scheme will be unlikely to recall much of it when they are adults. Although some activities called work may also be enjoyable and may foster many kinds of learning, both adults and children usually label as work those activities that are required, repetitive, and without inherent meaning to the person.

Using the Schema for Play and Learning

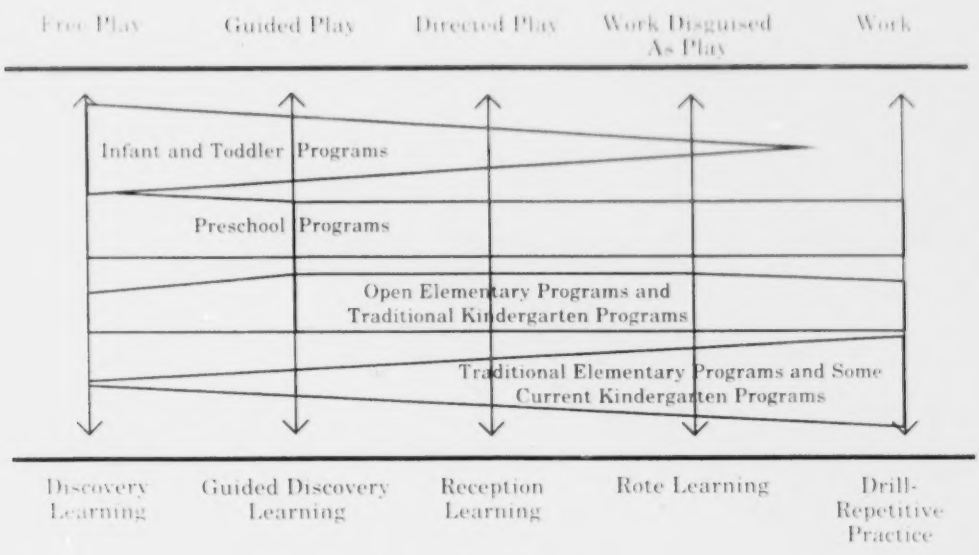
The previously described behaviors called play and those called learning are arranged on the schema to reflect a continuum of internal/external elements and to point to the interrelationship of play and learning processes. The left end of the schema highlights play and learning processes that require educational planning, observation, and facilitation of play and learning by adults but that do not require obtrusive adult direction. At the right are processes that have a high level of adult direction or task setting; children may not be motivated to engage in them unless there are external sanctions or rewards. Educators can evaluate their environments in terms of the dimensions on the schema.

Depending on the theoretical perspectives of the educator, the range of play encouraged will vary. There are many educators who would agree with the researchers who define only free play as true play. Other educators use guided and directed play as well, especially in the preschool and kindergarten. In general, as the age of children in the educational setting increases, educators allow less free-play time and devote more of their energies to using play in the service of work. Because elementary-age children are able to learn much from play, they can still benefit from an environment that includes activities from the playful end of the continuum. Educators' effectiveness in curricular planning and environmental design depends on the play and learning balance within the educational environment. Figure 4-2 gives examples of the typical spread of play and learning in some educational environments.

In many educational settings, learning activities are under a high level of adult control. Adults in those settings consider "work disguised as play" a valuable curricular tool, but rarely encourage other types of play. Because children are adept at turning dull but required activities into play, they can

For children who have not yet reached formal operational thought levels, the development of metacognition is most likely to be promoted through play. Moreover, enjoyment of learning is most likely to be fostered in play environments.

Figure 4-2 • The Schema of Play and Learning: Four Environmental Patterns



understand the value of making this transformation. If children have no control over transforming work into play, however, they may consider teacher-imposed tasks to be work even if they are called play (King, 1979). With young children, there may be confusion about the message of what play is because the signals for the play/work distinction may be unclear. Older children, however, can distinguish between enjoyable or playful work and "real play" (King, 1982c).

Activities that are in the center of the continuum may or may not be playful, depending on what elements essential for play are present in the setting. To be playful for children, these activities must grow from children's experiences and serve purposes of reception learning, consolidation, and mastery. That is, children must already possess a level of ability to perform the activity and be ready to "play around" with the idea. If the activity is primarily adult directed or if external reinforcement is necessary to get children to participate, children will not perceive the activity as play.

Those who plan to use play as a curricular tool must evaluate the activities typically called play in educational settings and must determine whether these activities have the right qualities to make the behavior playful. To plan play that is most likely to facilitate the goals of knowledge construction, educators should be aware of how these types of play are linked to learning goals. In designing educational play environments, careful thought should be given to the appropriate mix of types of play, and a high portion of this playtime should be devoted to free play and to guided play. Although educators may employ directed play and work disguised as play as curricular tools, they should not be the only activities labeled as play in the educational environment. For children who have

not yet reached formal operational thought levels, the development of metacognition is most likely to be promoted through play. Moreover, enjoyment of learning is most likely to be fostered in play environments.

The Physical and Social Environment as Design Variables

According to Piaget (1952), the processes that interact to promote the growth of intelligence are fourfold: (a) maturation (i.e., the unfolding of biologically based growth processes); (b) physical interaction with objects in the environment; (c) social transmission of knowledge through experiences with people; and (d) equilibration (i.e., the child's internal efforts to construct knowledge by organizing and relating experiences).

Educators can directly influence only two of these four processes. They can affect the world of physically perceivable knowledge (i.e., the physical environment) and the world of socially transmitted knowledge (i.e., the social environment). Both of these environments influence children's play development.

Physical environment factors include the types of materials and equipment available; the quality, quantity, and arrangement of space; the amount and sequencing of time; and sensory elements such as sound and texture. The physical environment also includes ecological factors in the educational community, and natural settings. For example, educational environments differ in important respects if located in city or rural areas.

The social environment factors to be considered in planning play environments include the social interaction patterns of the adults and children in the particular setting, the influence of the children's families and their local community and the influence of ethnic, regional, and national cultural values and practices. For example, ratio of adults to children, ages of peers and their numbers, extent of parent participation, and involvement levels of community people all will affect the play environment. Particular cultural attitudes toward play as a facilitator of learning and the competencies that the culture values will also influence the extent and nature of play. Because the society's cultural expectations have a major impact on the developmental competencies that are encouraged (Ogbu, 1981), play ability may be seen as a factor leading to success in the society or as an unimportant behavior that does not need to be encouraged. These values will affect support for the design of play environments in educational settings.

In planning play environments, educators and other practitioners can draw upon available research information on physical and social environmental factors that affect play development. They can relate that information to their knowledge of child development and to their personal knowledge of play as a medium for learning.

In addition to understanding children's play and learning development processes and general factors in the physical and social environment, educators need to understand environmental design principles, which must be considered in planning settings for play and learning. Specific information about principles of environmental design is given in the original book, *Play as a Medium for Learning and Development*. One of the basic principles that provides a criterion measure for environmental planning is the principle of "load," which is described by Mehrabian (1976).

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A Basic Principle of Environmental Design

According to Mehrabian (1976), *load* refers to the rate of information flow and the quantity and intensity of stimuli that are present in an environment. Some of the factors that make a high or low load environment are listed in Table 4-1.

Since all of the characteristics that define load can be related to dimensions of novelty and complexity, *load* is sometimes referred to as the combination of novelty and complexity in an environment. Novelty refers to the degree of unfamiliarity and uncertainty in the environment; it affects ability to predict what will happen. Complexity refers to the combination of the number, variety, and variability of elements. People react to environments either with approach or avoidance. Exploration, affiliation, and high performance are approach behaviors while lack of exploration, distancing, and operating below performance level are avoidance behaviors.

A particular environment may have the right balance of factors and thus the appropriate level of load for some people but not for others. Both children and adults vary in their sensitivity and reactions to environmental stimuli (Mehrabian, 1976; Thomas & Chess, 1977). Also, environments with different combinations of high and low load features may elicit different behaviors. For example, the research on factors predicting when children explore and when they play indicates that high novelty and complexity environments may elicit exploration rather than play, while environments with a moderate level of novelty and complexity are more likely to elicit play (Collard, 1979; Ellis, 1979; Hutt, 1979; Wohlwill, 1984).

Conclusion

In order to use play as a curricular tool, educators must be able to identify the kinds of learning that they wish to encourage and to evaluate the playful quality of their planned activities. Overall curricular plans can be reviewed to determine the appropriate balance of play/learning types and to predict the impact of the physical and social environment on curricular goals. Principles of environmental design can be used to create and enhance environments that foster play as a learning medium.

Table 4-1 • Characteristics of High- and Low-load Environments (from Mehrabian, 1976, pp. 12-13).

High Load	Low Load
Uncertain	Certain
Varied	Redundant
Complex	Simple
Novel	Familiar
Large scale	Small scale
Contrasting	Similar
Dense	Sparse
Intermittent	Continuous
Surprising	Usual
Heterogeneous	Homogeneous
Crowded	Uncrowded
Moving	Still
Rare	Common
Random	Patterned
Improbable	Probable

Good designs for play environments must be based on knowledge of the developmental characteristics of the children who will play in that setting; their individual differences and any cultural factors that may influence behavior in the play environment must also be considered. This

knowledge can then be combined with information about environmental design principles so that the play environment will have the optimum degree of novelty and complexity for the play development of those children.

Suggestions for Further Reading

Coates, G. (1974). *Alternative learning environments.* Stroudsburg, PA: Dowden, Hutchinson, & Ross. Provides examples of environmental designs appropriate for children's learning in a variety of settings, including ones in the larger community.

Cohen, U., Moore, G. T., & McGinty, T. (1978). *Environments for play and childcare.* Milwaukee: University of Wisconsin, Milwaukee Center for Architecture and Urban Planning Research. Discusses the essentials of good design for group environments for young children.

David, T. G., & Wright, B. D. (Eds.). (1975). *Learning environments.* Chicago: University of Chicago Press. Contains articles by a number of environmental designers concerned with school environmental designs that foster active learning.

Mehrabian, A. (1976). *Public places and private spaces: The psychology of work, play, and living environments.* New York: Basic Books. Gives views of environmental design from a psychological perspective. Includes chapters on basics of environments and how people's feelings and personalities are affected by and affect environments.

Walberg, H. J. (Ed.). (1979). *Educational environments and effects.* Berkeley, CA: McCutchan. Discusses evaluation, policy, and productivity issues related to a variety of learning environments. Includes articles on microenvironments (home, sociopsychological, and instructional) and macroenvironments (community, state, and nation).

Essay: Places of Beauty

Anita Rui Olds

Recently, I have come to think of settings for children not only as play, child care, and educational spaces, but also as environments for healing. By this I do not mean that children are physically or emotionally ill. Rather, the process of growth in our culture requires the establishment of an individual identity that in many ways conflicts with the underlying sense of unity and connection to all life that children know instinctively and that we all require in order to feel whole and fully ourselves.

In addition, the pursuit of goals and purposes, so fundamental to success in our culture, inevitably creates blinders; awareness of the whole is submerged by a focused and narrow vision to free consciousness for the performance of tasks. With age, accordingly, is an increasing tendency to be unaware of many subtle aspects of the physical world and its impact on work, moods, feelings, and well-being. Whereas children are exquisitely sensitive to *all* qualitative aspects of the environment, adults tend to absorb stimulation mechanically, without real attention. Eventually, such "distancing" from the environment leads to feelings of alienation, isolation, and separateness.

To counter this process of acculturation, the physical environment has an important role to play as a healing agent. To heal means "to make whole." A well-designed environment that forms a unifying thread, that both relates and harmonizes people and parts, can help to heal the breach between self and other that accompanies acculturation. To do this, the environment must mirror and support change, as well as create a sense of cohesiveness and aesthetic unity. Aesthetics, I believe, is the key.

Beautification of the dwelling preoccupies many a homemaker, yet comparable consideration is rarely given to the urban landscape, the work place, or play spaces for children. Instead, these settings, by virtue of their communal ownership, become aesthetic no-man's lands, designed more to assist the custodians who maintain them than the users who must grow and heal with them. It is considered fortunate if child-care spaces are large and clean. Aesthetic considerations beyond the basics are thought to be "luxuries," which invariably rank last or are ignored, frequently on the basis of expected cost alone.

But it is both illusory and possibly harmful to assume that an environment is suitable merely because it is lacking egregious faults of design and safety and can pass rudimentary safety and

cleanliness standards. Environments, like all aspects of life, are potent purveyors of stimulation, information, and affect, and their effects are *always* felt and incorporated in some way. Children live according to the information provided by their senses, and feast upon the nuances of color, light, sound, touch, texture, volume, movement, visual and kinesthetic vibration, form, and rhythm, by which they come to know the world. Their play is largely a response to variations in the environment. As the Hindus claim, "Sarvam annam," everything is food. Environments must be consciously and lovingly created to uplift the spirit and honor children's heightened sensibility. It is not sufficient that a setting be adequate. It must, instead, be beautiful.

Beauty is powerfully regenerative. The embrace of physical wholeness and harmony in a beautiful space transmits psychic wholeness and tranquillity. By inviting one to pause, attend, and be nourished by the world's richness, a beautiful place helps the inhabitants to feel connected yet free, and closer to personal sources of vitality and well-being. Far from being a luxury, one must question whether today's children, bombarded by chaotic, artificial, poorly integrated, and ugly settings can afford not to be given more aesthetically pleasing play and learning spaces. To do so requires attention to at least three factors: the quality of light, the presence of nature, and the character of interior finishes.

Quality of Light

Natural light changes continuously. It enables us to experience the passage of time, to estimate the time of day without recourse to mechanical devices, and to enjoy an implicit form of variety as our perception of objects and spaces changes under different conditions of illumination. It therefore provides many components of healing, including motion, change, difference-within-sameness, variety, information, and orientation.

According to Richard J. Wurtman, a neuroscientist at MIT, "it seems clear that light is the most important environmental input, after food, in controlling bodily function" (quoted in *The New York Times*, October 19, 1982). Experiments have shown that differently colored lights affect blood pressure, pulse, and respiration rates, brain activity, and biorhythms, and can be used to cure neonatal jaundice, psoriasis, and herpes sores (Wurtman, 1975). Sadly, the younger and more wounded an individual in this society is, the more likely it is that he or she will be placed in dark, poorly illuminated settings.

Research (Ott, 1973; Spivack & Tamer, 1981) suggests that the trend for people to spend increasing hours behind windows and windshields, eyeglasses and sunglasses, in front of TV and display terminals, and under the partial spectrum of fluorescent bulbs affects the incidence of headaches, arthritis, stunted growth, hormonal imbalances, and many other disorders. A healthy body seems to require

that full-spectrum light enter the eye and strike the retina, thereby affecting the production of melatonin, a neurotransmitter that controls sleep, mood, and carbohydrate assimilation. Time spent outdoors, or in the presence of sunlight streaming through an open window, may not only be healthful and educationally sound, but critical to our overall well-being.

For biological and aesthetic reasons, lighting must become a part of architecture, and a variety of forms—natural and artificial, general-ambient and task-specific—must be provided. Varied sources of lighting (e.g., floor, desk, ceiling, wall) can be easily added to most child spaces. Wall-mounted, reflected-light fixtures, in place of overhead fluorescents, simulate the experience of light in nature by "washing" the light down a wall and up over the ceiling. Most important, full-spectrum lights, which approximate the range of wavelengths provided by sunshine, should replace standard bulbs as a means of reducing disturbances caused by inadequate exposure to the ultraviolet and infrared ends of the spectrum. Accordingly, every means possible should be found to give play spaces an abundance of natural light; indeed, even, to require that no space without windows be used for educational purposes whatsoever, is not too stringent!

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Access to Nature

When a setting provides rhythmic patterns of predictable sameness, combined with moderate diversity, the senses are able to maintain optimum levels of responsivity and we experience what is known as "comfort." The standard for environmental comfort and well-being is set by nature itself. Natural elements such as blazing fires, babbling brooks, and gentle breezes are always in motion, undergoing fairly predictable yet varied transformations that prevent boredom and withdrawal by periodically reawakening the nervous system. Nature is perceived as both aesthetically pleasing and as a healer because of such soothing qualities of "difference-within-sameness."

Childhood is traditionally the period when subconscious images of nature as a primal source of nourishment and rejuvenation are laid down. Yet the absence of nature in many child-care spaces and in the urban setting, along with dense building proximity, and the tendency to locate child-care centers near target populations, public transportation, and energy sources rather than near sites with an abundance of natural features (i.e., woods, grass, open bodies of water, beautiful areas for walking) makes it increasingly difficult for children to have these kinds of primary

experiences. Biofeedback studies show that merely imagining a healing space can have a strong regenerative effect. How much more powerful then might be the experience of being physically located in a natural, outdoor setting?

The beauty and tranquillity experienced in natural settings is essential to healthy development. This suggests a new vision for play and child-care environments that must include not only "playgrounds," but also the entire outdoors as a part of any program. It should also incorporate natural features, as much as possible, into interior spaces. Ultimately, gardens, lawns, woods, ponds, and hills, where children could wander as part of their play, would become required elements for child-care environments; and buildings would be designed to incorporate and take advantage of unique views, perspectives, and relationships to the out-of-doors.

Eventually, these features need to be seen to be as critical to site selection as square footage and other locational criteria. In the meantime, every attempt must be made to enhance those natural features that do exist at any outdoor site, and to create interiors with a profusion of natural elements. Moderate structural changes such as balconies, porches, courtyards, window wells, lowered window sills, windows that can be opened, greenhouses, and clerestories (i.e., windows above eye level) could all assist in providing vital links between the indoors and the outside.

Finishes

The monotonous character of many child-care settings exacerbates feelings of unease, isolation, and separateness. This monotony must be replaced by the quality of difference-within-sameness so exquisitely manifest in nature, which enables the senses to maintain optimal levels of responsivity. Variety is the best guideline for creating aesthetically pleasing interiors. This means that, in addition to an abundance of natural light and nature-related elements, the finish materials used on floors, walls, ceilings, windows, and furniture need to be chosen for their capacity to create not just clean and safe, but meaningfully rich, interiors. Finishes have a more powerful impact on users and the overall ambiance of a facility than any other single factor. The textures and colors applied or not applied to the surfaces of interiors—perceived visually as well as tactually—are the close-at-hand aspects of the environment with which children come into contact most often, and "read" continually as they experience any space. Finishes affect what is seen, heard, touched, and smelled, and therefore have a direct effect on how people feel in a setting. While often the last design decision to be made—and often given short shrift where finances are limited—the choice of finishes must be an essential part of the design of any environment from the outset.

It is important to realize that all materials have texture. No one texture is better than any other, except in terms of

purposes and aesthetics. Problems arise when all or most surfaces have the same textural quality. The experience of texture is a complex interaction of the nature of the surfacing material—its depth, color, the way it reflects or reacts to light—and the nature of the light sources around it. Meaningful richness is the result of a variety of textures, each appropriate to the function, desired mood, and aesthetic feel of a particular space.

Modern human-made materials such as plastic aluminum, gypsum, and concrete tend to show wear and tear and do not age gracefully. Wood, on the other hand, shows the marks of use and time in ways that enrich and mellow the material. Messages of newness, modernity, and efficiency must be balanced by materials that convey a sense of history, timelessness, experience, permanence, and maturity. Neither is right nor wrong; rather it is the balance and variety that are critical.

Finishes chosen for surfaces may have two additional effects: they may emit odors or have a special "institutional" smell, and they may emit small quantities of noxious gases (Sterling, Sterling, & McIntyre, 1983) that cause headaches, respiratory and eye discharges, and nausea. In general, the effects of man-made materials on human health are not fully known. In the best interests of everyone, designers should try to utilize natural fabrics and substances (e.g., wood, brick, cotton, wool) wherever possible.

The Torre

Japanese architecture features an arch called a "torre" to signal the transition from profane to sacred territory, from that which is spontaneous and ordinary to that which is spiritually and aesthetically integrated. I have often thought that every child space should be framed by such an arch, and that the space should be designed to fulfill its meaning. Passage beyond the *torre* would then surround each child with beauty, wholeness, and care, proclaiming that each belongs to the sacred domain and, by his or her presence in it, is graced with inner and outer loveliness.

Essay: The Computer in the Play Environment

Anne E. Porter

How can computers and robots (i.e., computers designed for movement) be integrated appropriately into early childhood play environments? While the pros and cons of their inclusion continue to be debated, the ultimate impact of these potential "playthings" is unknown. As adults plan ways of incorporating the computer into the home or school setting, they must be clear about two basic points: First, interaction with the computer requires computer programs. Although young children may write simple "Logo" type programs, their experience with the computer environment is primarily dependent upon programs written by adults. Second, although the presence of computers may have some specific effects on environments, their impact is affected by and related to the total physical, social, emotional, and cognitive environment of the home or school setting.

The first point implies that adults who write, sell, and purchase computer programs may have theoretical views that could lead them at one extreme to use the computer to teach drill and practice exercises or alternatively to promote playful experiences fostering higher levels of thought, creativity, fantasy, and sociability. The implication of the second point is that the characteristics of the total environment, as reflections of these adults' perspectives, will greatly affect how children interact with and learn from the computer.

It is fascinating to note the differences in various adults' reactions when they observe children's interest in computers. Those who view play as a learning medium and those who see play as an immature and inconsequential pastime see the role of computers for children very differently. Adults not necessarily knowledgeable about play nevertheless readily recognize the power they are observing and their first reaction often is to try to harness that power to control children's learning. They envision 3-year-olds recognizing the alphabet, identifying symbols for words and quantities, or matching complex diagrams. They don't realize that these are such low level cognitive skills that even a computer can master them. The person who understands the learning that can come from play approaches the uses of computers very differently. For example, here are the words of a preschool teacher:

While using a program with children, notice how they are bringing other curriculum areas to the computer. For example, some children use computer programs that make sounds to make their own music rather than repeating the routine program. Notice how easily they pick up computer "lingo," such as "get back to the menu," and how they learn the sequences for loading, the letters they need to recognize in order to program, and concepts such as left and right. Watch the motor skills that they exercise while using the keyboard and the joystick. Observe the children's social skills. How do they help each other? Do they share computer time and space? How independent of adult help do they become? (Daniels, 1985)

This teacher had no previous experience with computers, but as she learned about them through her observations, she became intrigued with the possibilities and the attractions that computers had for children. This is an example of what can happen in an environment that consistently supports a view of play as a medium for learning. The staff in this teacher's school is chosen and educated to exemplify this trust in children's active seeking of knowledge. Further, the environment is arranged to make playful learning possible. The setting is open and accessible, rich in a variety of materials and equipment, and supportive of both individual and group play. In a social environment that encourages child initiative and choice of activities, the computer is seen as just another play choice in that environment. The children think they are playing, and the teacher thinks they are learning (King, 1979), and of course, they are doing both. The question remains, what are they learning?

Children learn from their interactions with the physical and social environment. From people children learn about acting and being acted upon, and how they can influence others' actions and reactions. Because of the nature of the social world, they also learn that social interaction is not totally predictable. The physical environment provides a different set of lessons. When it is acted upon, natural laws bring about consistent outcomes. Children's interactions with their physical and social environments provide them with different sets of information. The unique learning from the computer is gained from its blending of these two types of experiences: (a) the responsiveness and variation in ability to control and influence responses that is characteristic of the social world; and (b) the predictable learned from the physical world. Because children can make the computer respond as they wish, they get a feeling of

Children's interactions with their physical and social environments provide them with different sets of information. The unique learning from the computer is gained from its blending of these two types of experiences.

power. But with that power comes responsibility. If the computer doesn't respond as they expect it to, because of their past experience with its consistency, they are more likely to consider the possibility that they are responsible for the computer's unanticipated responses.

Another aspect of computer experience related to the interaction of the realms of development—physical, social, emotional, and cognitive. The computer may encourage a level of interaction by allowing assimilation of abstract concepts such as sequences or classifications at a symbolically "semi" concrete level. Images on the screen are a step away from the concrete physical environment; they can't be touched or held and manipulated. But children can act on them and control them. Sometimes there appears to be a "dance" between computer and child that is similar to the dance described by Brazelton (1978) when he observed the interaction patterns of mothers and children. In this exchange routine, one of the participants (i.e., the computer) never gets tired. Through the two-dimensional images on the screen, children learn about the process of manipulating ideas in this environment, integrating all developmental realms. This bridge between the concrete and the abstract worlds may help children learn to manipulate ideas, assimilating and consolidating knowledge of these two worlds (Fein, 1985a).

If computers are used to force the introduction of abstract symbol systems, however, the playfully constructed bridge evaporates. Then the ABC's and the 123's will be as meaningless to children drilled by the computer as to those drilled by dittos or flash cards. Because play actively engages the imagination and encourages the creation of new possibilities, those children who have the opportunity to engage their imagination in active computer play with ideas may develop deeper understandings of concepts and greater creativity and flexibility of thought. Because children also use the computer as a social mediator (Swigger, Campbell, & Swigger, 1983), their experience may foster social skills such as cooperation and reciprocal turn taking as well. Even if higher levels of integrated development are not the ultimate outcomes of computer play, however, the computer can be enjoyed as a plaything if adults provide the environment that supports its use as another choice, among many, for play.

Essay: Play, Technology, and the Authentic Self

Doris Bergen

"What is REAL?" asked the Rabbit one day, when they were lying side by side near the nursery fender, before Nana came to tidy the room. "Does it mean having things that buzz inside you and a stick-out handle?"

"Real isn't how you are made," said the Skin Horse. "It's a thing that happens to you. When a child loves you for a long, long time, not just to play with, but REALLY loves you, then you become Real."

"Does it hurt?" asked the Rabbit.

"Sometimes," said the Skin Horse, for he was always truthful. "When you are REAL you don't mind being hurt."

"Does it happen all at once, like being wound up," he asked, "or bit by bit?"

"It doesn't happen all at once," said the Skin Horse. "You become. It takes a long time. That's why it doesn't often happen to people who break easily, or have sharp edges, or who have to be carefully kept. Generally, by the time you are Real, most of your hair has been loved off, and your eyes drop out and you get loose in the joints and very shabby. But these things don't matter at all, because once you are Real you can't be ugly, except to people who don't understand." (Bianco, 1926, pp. 16-17)

The Velveteen Rabbit: Or How Toys Become Real (Bianco, 1926) has always been one of my favorite stories. As a child, I remember reading it over and over, partly because it was one of the books I owned. (Although I think libraries are wonderful, there has always been something very special to me about the books I owned.) But also, the question of realness—of authenticity—captures for me the dilemma of human existence, which is, I think, how to become—and to stay—"real."

The search for authenticity has always been part of the human quest for personal meaning; however, in our technological age, with all the things that "buzz inside" and "break easily," some people think we are more in danger than ever of not becoming "real." Our society often seems to encourage the superficial fad, the artificial material, and the official front. Our technology sometimes directs minds and efforts toward interaction with things not persons, toward abstractions not concreteness, and toward events that "happen all at once" not things that "take a long time."

The social context has always been a major influence on human authenticity, of course. From infancy on, all of us are required to begin differentiating our inner

world from the outer "real" world, as defined first by parents, siblings, and other relatives; then by teachers and peers; then by significant others, spouses, one's own children, friends, colleagues, bosses, and the other humans met in person or through media in communities, nations, and continents.

They insist that we learn to separate fantasy from "reality," accept the cognitive and social conventions of how things "really" are, and come to believe the common wisdom that says it is "real work," not play, that counts. As we learn to perform the roles we are assigned by the socialization forces in our environment, we sometimes forget that they are roles—often ones we have been pressed into accepting but not ones we would have chosen. They may not comfortably fit our authentic selves but rather leave us feeling diminished and unreal.

Our interactions with the physical world of reality also shape us—form and structure, time and space, matter and energy, even atom and particle—often appear to be more real than our playful fantasies and our dreams. Sometimes our encounters with the technological world may leave us feeling distant and alone, out of control of our lives, and, as robots become more humanlike, even fearing that we will be increasingly unable to distinguish "what is real."

So how do we become real in a technological age?

The same playful qualities that saved humans from the vagaries of primitive existence and that have brought us into this present complex society can help us to find and preserve our realness in the future. As Ellis points out earlier in this book, play may be our major adaptive tool for dealing with the future, as it has been for surviving the past. Bateson (1955, 1956) has suggested that being able to manipulate reality in play confirms our grasp on other realities. And, in an earlier essay, Bretherton explains that it is the fact that children have "shared understandings about the real world" that makes it possible for them to agree to transform that world in their play. The "problem" of play, as I see it, is that few consider play to be real. Its *nonliterality* is often interpreted to mean nonreality. But, as Sheehan (1975) reminds us, "play . . . is the most real thing . . ." (p. 184).

When children engage in play, trying out practice skills, trying on pretend roles, trying to live by game rules, they can learn much about their authentic selves. By testing the limits of their abilities in the self-imposed activities of play, they can find out who they are and realize what they can become. Unfortunately, there are also times (e.g., under adult or peer pressure) when they learn in play to narrow their perspectives and to deny who they really are because of what society wants them to be. It is important that as children learn to individuate, classify, accept, and come to terms with socially identified realities, they don't lose the opportunity to "become real"

in the process.

How can play help them (and us) to "become real?"

First, play enables us to distinguish text and context and thus, to keep our perspective on reality and our sense of inner control. We can test a wide range of roles and risk playing those that are most authentic for ourselves. We can create and revise the play frame of our lives so that we can play these authentic roles comfortably and joyously. We can communicate with others within and without of the social context; and thus negotiate for ourselves better texts for performing our roles. We can use play as a fine-tuning device to stay in touch with our most intense and personal feelings and thoughts. And we bend the reality of the present social and physical world to imagine and to plan for the world of the future.

Second, play can provide a medium for linking technological learning and our self-knowledge-seeking. To adapt to the world of the next century, with its as yet unimagined human, scientific, and technological possibilities, we have to be able to think in "as if" and "what if" ways. In our concern about possible negative effects of technology, I think we have often ignored its play and self-enhancement potential, which can help us in our search for realness. For example, computer networks are demonstrating that technology can connect the mind and heart and leave the irrelevant characteristics of the body—gender, physical appearance, race, handicaps—behind, thus opening up a new world of play and communication of "unencumbered" ideas and feelings.

Play also serves as a medium for technological conquest, as the simulations that prepare adults for space flight, the models used to play "through" the planned flight experiences, and even the risk taking "what if" attitude that the astronauts demonstrate. In the same way that play provided a medium for invention in other centuries, it encourages the thinking and dreaming that are needed for survival now. Perhaps, in the future, war games will be played on a computer or in a stadium with symbolic weapons so that we can even leave the crazy "reality" of war's pain and destruction behind us.

Finally, play is the medium through which we can learn to risk the pain and the joy of realness. Children know this intuitively and, underneath our layers of sophistication and socialization, so do we. Play helps us learn that becoming real involves risk taking and willingness to be hurt, get shabby, and become loose in the joints. In our search for realness,

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we may have to follow new scripts, discarding or revising the scripts we rehearsed and memorized in childhood. We may be required to face dark and scary visions and thoughts or give up tightly held areas of control to experience what Herron and Sutton-Smith (1971) call "voluntary disequilibrium" as a price for movement. And we may even need to acknowledge that many of our social maneuvers and our work goals, which seem to be such serious business, are games after all.

A playful attitude toward life allows us to keep in touch with ourselves while we examine, accept, manipulate, and integrate our many realities. Once we learn to do that, we can even reframe and integrate the realities of our work with those of our play, and experience the joyful "flow" that comes from this holistic authenticity (Csikszentmihayli, 1979). Then, perhaps we will be more able to help children to experience and develop their authenticity in both their play and their work.

As we open ourselves up to the "as ifs" and "what ifs" in our futures, transform our work into play and our play into work as the need arises, and see beyond our props, roles, and appearances to embrace our realness—even those parts of us that are a bit worn and shabby—we will convey to children our knowledge that a life playfully and actively lived is worth the risk. We will know (as the Toys know) that "once you are Real, you can't be ugly, except to people who don't understand."

Epilogue

The thought-provoking ideas presented in this *Readings* edition will not be particularly useful to the readers if they are discussed only in college classrooms or "preached to the choir" of early childhood educators. They must also be "played-out" in the readers' professional activity if they are to be a major influence on children's development and learning. Now that you have read the chapters and essays in this book and identified those ideas about play that are most useful to you, you must put the ideas you have valued into practice. In order to help you know how to do that, I offer a final suggestion on How to Begin:

W: Let's pretend that I am a writer who has helped you to learn more about play and its relationship to development and learning. . . . And let's pretend that you are a student who wants to try out some of the ideas you learned in this book.

(The others join in . . .)

A: I can be a teacher who understands how to use play as a curricular tool and can show my educational team how to encourage playful ways of knowing . . .

B: And I'll be a center director who has ideas about play to share with parents and caregivers of infants . . .

C: I am a child life specialist who has skills to develop a hospital play program . . .

D: I'll be a principal who believes I should share my knowledge of play's importance with the school board . . .

E: I'm going to be a psychologist who studies about play development, shares that knowledge with students, and publishes information for colleagues . . .

F: And I am a parent who knows how to foster my child's play at home . . .

All: Let's get the ideas and materials we need . . . let's find the right places to start . . . let's arrange our spaces . . . let's develop our scripts . . . let's practice our roles . . .

And now, let us *Begin* . . .

References

Abrahams, R. D. (1962). Playing the dozens. *Journal of American Folklore, 75*, 209-220.

Abrahams, R. D. (Ed.). (1969). *Jump-rope rhymes: A dictionary*. Austin, TX: University of Texas Press.

Aldis, O. (1975). *Play fighting*. New York: Academic Press.

Allen of Hurtwood, Lady. (1968). *Planning for play*. London: Thames & Hudson.

Ammar, H. (1954). *Growing up in an Egyptian village*. London: Routledge & Kegan Paul.

Areo, C. (1983). Pacing of playful stimulation to young infants: Similarities and differences in maternal and paternal communication. *Infant Behavior and Development, 6*(2), 223-228.

Ashby, W. R. (1960). *Design for a brain: The origin of adaptive behavior* (2nd ed.). New York: Wiley.

Ausubel, D. P. (1968). *Educational psychology: A cognitive view*. New York: Holt, Rinehart & Winston.

Bakeman, R., & Adamson, L. B. (1984). Coordinating attention to people and objects in mother-infant and peer-infant interaction. *Child Development, 55*, 1278-1289.

Barnes, G. M. (1981). Solitary play: Social immaturity or autonomous achievement striving? *Australian Journal of Early Childhood, 6*(3), 12-15.

Barnett, L., & Kleiber, D. A. (1984). Playfulness and the early play environment. *Journal of Genetic Psychology, 144*(2), 153-164.

Bateson, G. (1955). A theory of play and fantasy. *American Psychiatric Association Research Reports, 2*, 39-51.

Bateson, G. (1956). The message "This is play." In B. Schaffner (Ed.), *Group processes: Transactions of the second conference* (pp. 145-241). New York: Josiah Macy, Jr. Foundation.

Berg, M., & Medrich, E. A. (1980). Children in four neighborhoods: The physical environment and its effect on play and play patterns. *Environment and Behavior, 12*(3), 320-348.

Bergen, D. (1985, 1986). *Memories of play* (Nos. 1 & 2). Unpublished manuscripts. Pittsburgh State University, Pittsburgh, KS.

Berlyne, D. E. (1960). *Conflict, arousal and curiosity*. New York: McGraw-Hill.

Berlyne, D. E. (1966). Curiosity and exploration. *Science, 153*, 25-33.

Berndt, T. J. (1981a). Effects of friendship on prosocial intentions and behavior. *Child Development, 52*, 636-643.

Berndt, T. J. (1981b). Relations between social cognition, nonsocial cognition, and social behavior: The case of friendship. In J. H. Flavell & L. Ross (Eds.), *Social cognitive development* (pp. 176-199). New York: Cambridge University Press.

Berndt, T. J. (1982). Fairness and friendship. In K. H. Rubin & H. S. Ross (Eds.), *Peer relationships and social skills in childhood* (pp. 253-278). New York: Springer-Verlag.

Bianco, M. W. (1926). *The velveteen rabbit. Or how toys become real*. Garden City, NY: Doubleday.

Bigelow, B. L. (1977). Children's friendship expectations: A cognitive developmental study. *Child Development, 48*, 246-253.

Bloch, M. N. (1984). Play materials: Considerations from a West African setting. *Childhood Education, 60*(5), 345-348.

Block, J. H. (1983). Differential premises arising from differential socialization of the sexes: Some conjectures. *Child Development, 54*, 1335-1354.

Blurton-Jones, N. G. (1972). Categories of child-child interaction. In N. G. Blurton-Jones (Ed.), *Ethological studies of child behavior* (pp. 97-129). New York: Cambridge University Press.

Blurton-Jones, N. G., & Konner, M. J. (1973). Sex differences in behavior of London and Bushman children. In R. P. Michael & J. H. Crook (Eds.), *Comparative ecology and behaviour of primates* (pp. 689-750). London: Academic Press.

Brazelton, T. B. (1978). Early parent-infant reciprocity. In J. K. Gardner (Ed.), *Readings in developmental psychology* (pp. 71-78). Boston: Little, Brown.

Brazelton, T. B., Koslowski, B., & Main, M. (1974). The origins of reciprocity: The early mother-infant interaction. In M. Lewis & L. A. Rosenblum (Eds.), *The effect of the infant on its caregiver* (pp. 49-77). New York: Wiley.

Breger, L., Hunter, I., & Cane, R. W. (1971). *The effect of stress on dreams*. New York: International Universities Press.

Bretherton, I. (1984a). Representing the social world in symbolic play: Reality and fantasy. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 1-43). New York: Academic Press.

Bretherton, I. (Ed.). (1984b). *Symbolic play: The development of social understanding*. New York: Academic Press.

Bretherton, I., O'Connell, B., Shore, C., & Bates, E. (1984). The effect of contextual variation on symbolic play: Development from 20 to 28 months. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 271-298). New York: Academic Press.

Brewster, P. G. (1953). *American nonsinging games*. Norman, OK: University of Oklahoma Press.

Bright, M. C., & Stockdale, D. F. (1984). Mothers', fathers' and preschool children's interactive behaviors in a play setting. *Journal of Genetic Psychology, 144*(2), 219-232.

Britt, S. H., & Janus, S. (1941). Toward a social psychology of human play. *The Journal of Social Psychology, 13*, 351-384.

Brown, F. L., Amos, J. R., & Mink, O. G. (1975). *Statistical concepts: A basic program*. New York:

Harper & Row.

Bruner, J. S. (1966). *Toward a theory of instruction.* Cambridge, MA: Harvard University Press.

Bruner, J. S. (1979). *On knowing.* Cambridge, MA: Harvard University Press.

Bruner, J. S., Jolly, A., & Sylva, K. (Eds.). (1976). *Play: Its role in development and evolution.* New York: Basic Books.

Bruner, J. S., & Sherwood, V. (1976). Peek-a-boo and the learning of rule structures. In J. S. Bruner, A. Jolly, & K. Sylva (Eds.), *Play: Its role in development and evolution* (pp. 277-285). New York: Basic Books.

Buhler, C. (1935). *From birth to maturity.* London: Routledge & Kegan Paul.

Caillois, R. (1961). *Man, play and games.* New York: Free Press.

Chaille, C., & Young, P. (1980). Some issues linking research on children's play and education: Are they "only playing"? *International Journal of Early Childhood, 12*(2), 52-56.

Christie, J. F. (1980). Play for cognitive growth. *Elementary School Journal, 81,* 115-118.

Christie, J. F. (1982). Sociodramatic play training. *Young Children, 37*(4), 25-32.

Christie, J. F., & Johnsen, E. P. (1983). The role of play in social-intellectual development. *Review of Educational Research, 53*(1), 93-115.

Chukovsky, K. (1963). *From two to five.* Berkeley, CA: University of California Press.

Cicchetti, D. (1985). Caregiver-infant interaction: The study of maltreated infants. In C. C. Brown & A. W. Gottfried (Eds.), *Play interactions: The role of toys and parental involvement in children's development* (pp. 107-113). Skillman, NJ: Johnson & Johnson.

Clarke-Stewart, K. A., VanderStoep, L. P., & Killian, I. G. A. (1979). Analysis and replication of mother-child relations at two years of age. *Child Development, 50,* 777-793.

Coates, G. (1974). *Alternative learning environments.* Stroudsburg, PA: Dowden, Hutchinson, & Ross.

Coates, S., Lord, M., & Jakabovics, E. (1975). Field dependence-independence, social-nonsocial play, and sex differences. *Perceptual and Motor Skills, 40,* 195-202.

Cohen, U., Moore, G. T., & McGinty, T. (1978). *Environments for play and child care.* Milwaukee, WI: University of Wisconsin, Milwaukee Center for Architecture and Urban Planning Research.

Collard, R. (1979). Exploration and play. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 45-56). New York: Gardner Press.

Connolly, J. A. (1981). *The relationship between social pretend play and social competence in preschoolers: Correlational and experimental studies.* Unpublished doctoral dissertation, Concordia University, Montreal.

Coury, K., & Wolfgang, C. (1984). An overview of the measurement methods of toy and play preference studies. *Early Child Development and Care, 14*(3-4), 217-232.

Crawley, S. B., & Sherrod, K. G. (1984). Parent-infant play during the first year of life. *Infant Behavior and Development, 7,* 65-73.

Csikszentmihayli, M. (1979). The concept of flow. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 257-274). New York: Gardner Press.

Daniels, N. (1985). *Somerset early childhood center staff training program.* Unpublished manuscript. Troy, MI.

Dansky, J. L., & Silverman, I. W. (1973). Effects of play on associative fluency in pre-school children. *Developmental Psychology, 9,* 38-43.

David, T. G., & Wright, B. D. (Eds.). (1975). *Learning environments.* Chicago: University of Chicago Press.

DeLoache, J. S., Sugarman, S., & Brown, A. L. (1985). The development of error correction strategies in young children's manipulative play. *Child Development, 56,* 928-939.

Desmond, R. J., Singer, J. L., Singer, D. G., Calam, R., & Colimore, K. (1985). Family mediation patterns and television viewing: Young children's use and grasp of the medium. *Human Communication Research, 11*(4), 461-480.

DeVries, R. (1970). The development of role-taking as reflected by behavior of bright, average, and retarded children in a social guessing game. *Child Development, 41,* 759-770.

DiPietro, J. A. (1981). Rough and tumble play: A function of gender. *Developmental Psychology, 17*(1), 50-58.

Downs, A. C., & Langlois, J. H. (1977). *Mother and peer influences on children's sex-role play behaviors.* Austin, TX: Hogg Foundation for Mental Health. (ERIC Document Reproduction Service No. ED 146 475)

Eiferman, R. R. (1971). Social play in childhood. In R. E. Herron & B. Sutton-Smith (Eds.), *Child's play* (pp. 270-297). New York: Wiley.

Elder, J. L., & Pederson, D. R. (1978). Preschool children's use of objects in symbolic play. *Child Development, 49,* 500-504.

El'konin, D. B. (1966). Symbolics and its functions in the play of children. *Soviet Education, 8,* 35-41.

Ellis, M. J. (1973). *Why people play.* Englewood Cliffs, NJ: Prentice-Hall.

Ellis, M. J. (1979). The complexity of objects and peers. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 157-174). New York: Gardner Press.

Ellis, M. J., & Scholtz, G. (1978). *Activity and play of children.* Englewood Cliffs, NJ: Prentice-Hall.

Emmerich, W. (1977). Evaluating alternative models of development: An illustrative study of preschool personal-social behaviors. *Child Development, 48,* 1401-1410.

Erikson, E. H. (1963). *Childhood and society* (2nd ed.). New York: Norton.

Fagot, B. I. (1974). Sex differences in toddlers' behavior and parental reaction. *Developmental Psychology, 10,* 554-558.

Fagot, B. I. (1978). *The consequences of same-sex, cross-sex, and androgynous preferences.* Bethesda, MD: National Institutes of Health. (ERIC Document

Reproduction Service No. ED 160 967)

Fagot, B. I. (1984a). Teacher and peer reactions to boys' and girls' play styles. *Sex Roles, 11*, 691-702.

Fagot, B. I. (1984b). The consequents of problem behaviors in toddler children. *Journal of Abnormal Child Psychology, 12*, 385-395.

Fagot, B. I. (1985). Changes in thinking in early sex role development. *Developmental Review, 5*, 85-98.

Fagot, B. I., Hagan, R., Leinbach, M. D., & Kronsberg, S. (1985). Differential reactions to assertive and communicative acts of toddler boys and girls. *Child Development, 56*, 1499-1505.

Fagot, B. I., & Littman, I. (1975). Stability of sex role and play interests from preschool to elementary school. *Journal of Psychology, 89*, 285-292.

Fagot, B. I., & Patterson, G. R. (1969). An "in vivo" analysis of reinforcing contingencies for sex role behaviors in the preschool child. *Developmental Psychology, 1*, 563-568.

Fein, G. G. (1975). A transformational analysis of pretending. *Developmental Psychology, 11*(3), 291-296.

Fein, G. G. (1979). Play with actions and objects. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 69-82). New York: Gardner Press.

Fein, G. G. (1981). Pretend play: An integrative review. *Child Development, 52*, 1095-1118.

Fein, G. G. (1985a). Learning in play: Surfaces of thinking and feeling. In J. L. Frost & S. Sunderlin (Eds.), *When children play* (pp. 45-53). Olney, MD: Association for Childhood Education International.

Fein, G. G. (1985b). The affective psychology of play. In C. C. Brown & A. W. Gottfried (Eds.), *Play interactions: The role of toys and parental involvement in children's development* (pp. 19-28). Skillman, NJ: Johnson & Johnson.

Fein, G. G., & Apfel, N. (1979). Some preliminary observations on knowing and pretending. In N. Smith & M. Franklin (Eds.), *Symbolic functioning in childhood* (pp. 87-100). Hillsdale, NJ: Erlbaum.

Fein, G. G., & Robertson, A. R. (1975). *Cognitive and social dimensions of pretending in two-year-olds.* Detroit: Merrill-Palmer Institute. (ERIC Document Reproduction Service No. ED 119 806)

Fein, G. G., & Schwartz, P. M. (1982). Developmental theories in early education. In B. Spodek (Ed.), *Handbook of research in early childhood education* (pp. 82-104). New York: Free Press.

Feitelson, D., & Ross, G. S. (1973). The neglected factor—play. *Human Development, 16*, 202-223.

Fenson, L., Kagan, J., Kearsley, R. B., & Zelazo, P. R. (1976). The developmental progression of manipulative play in the first two years. *Child Development, 47*, 232-235.

Fenson, L., & Ramsay, D. S. (1980). Decentration and integration of the child's play in the second year. *Child Development, 51*, 171-178.

Fischer, J., & Fischer, A. (1963). The New Englanders of Orchard Town, U.S.A. In B. Whiting (Ed.), *Six cultures: Studies of child rearing* (pp. 869-1010). New York: Wiley.

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. B. Resnick (Ed.), *The nature of intelligence* (pp. 231-235). Hillsdale, NJ: Erlbaum.

Flavell, J. H. (1977). *Cognitive development.* Englewood Cliffs, NJ: Prentice-Hall.

Flavell, J. H. (1981). Cognitive monitoring. In W. P. Dixon (Ed.), *Children's oral communication skills* (pp. 35-60). New York: Academic Press.

Flavell, J. H. (1982). On cognitive development. *Child Development, 53*, 1-10.

Foley, M., & McGuire, D. (1981). Cognitive skills and street activity. *Urban Education, 16*(1), 13-36.

Forman, G. E., & Hill, F. (1980). *Constructive play: Applying Piaget in the preschool.* Monterey, CA: Brooks/Cole.

Fortes, M. (1976). Social and psychological aspects of education in Taleland. In J. S. Bruner, A. Jolly, & K. Sylva (Eds.), *Play: Its role in development and evolution* (pp. 474-483). New York: Basic Books.

Foster, H. L. (1974). *Ribbin', jivin' and playin' the dozens: The unrecognized dilemma of inner city schools.* Cambridge, MA: Ballinger.

Freud, S. (1961). *Beyond the pleasure principle.* New York: Norton. (Original work published 1920.)

Freyberg, J. T. (1973). Increasing the imaginative play of urban disadvantaged kindergarten children through systematic training. In J. L. Singer (Ed.), *The child's world of make-believe: Experimental studies of imaginative play* (pp. 129-155). New York: Academic Press.

Froebel, F. (1887). *The education of man.* New York: Appleton-Century.

Frost, J. L., & Campbell, S. D. (1985). Equipment choices of primary-age children on conventional and creative playgrounds. In J. L. Frost & S. Sunderlin (Eds.), *When children play* (pp. 89-93). Olney, MD: Association for Childhood Education International.

Gagne, R. M. (1968). Contributions of learning to human development. *Psychological Review, 75*, 177-191.

Gagne, R. M. (1977). *The conditions of learning* (3rd ed.). New York: Holt Rinehart & Winston.

Garvey, C. (1974). Some properties in social play. *Merrill-Palmer Quarterly, 20*, 163-180.

Garvey, C. (1977a). *Play.* Cambridge, MA: Harvard University Press.

Garvey, C. (1977b). Play with language. In B. Tizard & D. Harvey (Eds.), *Biology of play* (pp. 74-99). London: Heinemann.

Garvey, C. (1979). Communicational controls in social play. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 109-125). New York: Gardner Press.

Gay, L. R. (1976). *Educational research: Competencies for analysis and application.* Columbus, OH: Charles E. Merrill.

Giffin, H. (1984). The coordination of meaning in the creation of a shared make-believe reality. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 73-100). Orlando, FL: Academic Press.

Gilmore, J. B. (1971). Play: A special behavior. In R. E. Herron & B. Sutton-Smith (Eds.), *Child's play*

(pp. 343-355). New York: Wiley.

Golomb, C. (1977). Symbolic play: The role of substitutions in pretense and puzzle games. *British Journal of Educational Psychology, 47*, 175-186.

Greenfield, P. M., Nelson, K., & Saltzman, E. (1972). The development of rule-bound strategies for manipulating seriated cups: A parallel between action and grammar. *Cognitive Psychology, 3*, 291-310.

Groos, K. (1901). *The play of man*. New York: Appleton.

Hall, G. S. (1920). *Youth*. New York: Appleton.

Hallinan, M. T., & Tuma, N. B. (1978). Classroom effects on change in children's friendships. *Sociology of Education, 51*, 270-282.

Halverson, C. F., & Waldrop, M. F. (1976). Relations between preschool activity and aspects of intellectual and social behavior at age 7 1/2. *Developmental Psychology, 12*, 107-112.

Hay, D. F., Nash, A., & Pedersen, J. (1983). Interaction between six-month-old peers. *Child Development, 54*, 557-562.

Hay, D. F., Ross, H. S., & Goldman, B. D. (1979). Social games in infancy. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 83-107). New York: Gardner Press.

Henderson, B. (1984). The social context of exploratory play. In T. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 171-201). Hillsdale, NJ: Erlbaum.

Herron, R. E., & Sutton-Smith, B. (1971). *Child's play*. New York: Wiley.

Hetherington, E. M., Cox, M., & Cox, R. (1979). Play and social interaction in children following divorce. *Journal of Social Issues, 35*(4), 26-49.

Hodapp, R. M., Goldfield, E. C., & Boyatzis, C. J. (1984). The use and effectiveness of maternal scaffolding in mother-infant games. *Child Development, 55*, 772-781.

Huizinga, J. (1950). *Home Ludens: A study of the play element in culture*. London: Routledge & Kegan Paul.

Hutt, C. (1971). Exploration and play in children. In R. E. Herron & B. Sutton-Smith (Eds.), *Child's play* (pp. 231-251). New York: Wiley. (Reprinted from *Symposium of the Zoological Society of London, 18*, 61-81).

Hutt, C. (1979). Exploration and play (#2). In B. Sutton-Smith (Ed.), *Play and learning* (pp. 175-194). New York: Gardner Press.

Hutt, C., & Hutt, S. J. (1977). Heart rate variability: The adaptive consequences of individual differences and state changes. In N. Blurton-Jones & V. Reynolds (Eds.), *Human behavior and adaptation* (pp. 171-189). London: Taylor & Francis.

Inhelder, B., Lezine, I., Sinclair, H., & Stambak, M. (1972). Less debuts de la function symbolique. *Archives de Psychologie, 41*, 187-243.

James, N. C., & McCain, T. A. (1982). Television games preschool children play: Patterns, themes and uses. *Journal of Broadcasting, 26*(4), 783-800.

Johnson, H. M. (1928). *Children in the nursery school*. New York: Day.

Johnson, J., & Ershler, J. (1981). Developmental trends in preschool play as a function of classroom setting and child gender. *Child Development, 52*, 95-104.

Kagan, J. (1971). *Change and continuity in infancy*. New York: Wiley.

Kamii, C., & DeVries, R. (1980). *Group games in early education: Implications of Piaget's theory*. Washington, DC: National Association for the Education of Young Children.

Kawin, E. (1934). The function of toys in relation to child development. *Child Education, 11*(3), 122-133.

King, N. (1979). Play: The kindergartners' perspective. *Elementary School Journal, 80*(2), 81-87.

King, N. (1982a). Children's play as a form of resistance in the classroom. *Journal of Education, 164*(4), 320-329.

King, N. (1982b). School uses of materials traditionally associated with children's play. *Theory and Research in Social Education, 10*(3), 17-27.

King, N. (1982c). Work and play in the classroom. *Social Education, 46*(2), 110-113.

Kirschenblatt-Gimblett, B. (Ed). (1976). *Speech play*. Philadelphia: University of Pennsylvania Press.

Kirschenblatt-Gimblett, B. (1979). Speech play and verbal art. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 219-238). New York: Gardner Press.

Klein, M. (1955). The psychoanalytic play technique. *American Journal of Orthopsychiatry, 25*, 223-237.

Klinger, E. (1970). *The structure and function of fantasy*. New York: Wiley.

Kohlberg, L. K. (1976). Moral stages and moralization: The cognitive-developmental approach. In T. Lickona (Ed.), *Moral development and behavior* (pp. 31-53). New York: Holt, Rinehart & Winston.

Krasnor, L. R., & Pepler, D. J. (1980). The study of children's play: Some suggested future directions. In K. H. Rubin (Ed.), *New directions in child development: Children's play* (No. 3, pp. 85-96). San Francisco: Jossey-Bass.

Kreitler, H., & Kreitler, S. (1976). *Cognitive orientation and behavior*. New York: Springer-Verlag.

Krown, S. (1974). *Threes and fours go to school*. Englewood Cliffs, NJ: Prentice-Hall.

Lamb, M. E. (1977). Father-infant and mother-infant interaction in the first year of life. *Child Development, 48*, 167-181.

Laosa, L. M. (1977). Socialization, education and continuity: The importance of the sociocultural context. *Young Children, 32*(5), 21-27.

Lehman, H. C., & Witty, P. A. (1927). *The psychology of play activities*. New York: A. S. Barnes.

Lepper, M. R., & Greene, D. (1975). Turning play into work: Effects of adult surveillance and extrinsic motivation. *Journal of Personality and Social Psychology, 31*, 479-486.

Lewis, M. (1979). The social determination of play. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 23-33). New York: Gardner Press.

Lewis, M., & Rosenblum, L. (Eds.). (1974). *The effect of the infant on its caregiver*. New York: Wiley.

Lieberman, J. N. (1965). Playfulness and divergent thinking: An investigation of their relationship at the kindergarten level. *The Journal of Genetic Psychology, 107*(2), 219-224.

Lieberman, J. N. (1977). *Playfulness: Its relationship to imagination and creativity*. New York: Academic Press.

Linford, A., Jeanrenaud, C., Karlsson, K., Witt, P., & Linford, M. (1971). A computerized analysis of characteristics of Down's Syndrome and normal children's free play patterns. *Journal of Leisure Research, 3*, 44-52.

Longo, J., Harvey, A., Wilson, S., & Deni, R. (1982). Toy play, play tempo and reaction to frustration in infants. *Perceptual and Motor Skills, 55*(1), 239-242.

Lowe, M. (1975). Trends in the development of representational play in infants from one to three years: An observational study. *Journal of Child Psychology and Psychiatry, 16*, 33-47.

Lunzer, E. A. (1959). Intellectual development in the play of young children. *Educational Review, 11*(3), 205-217.

Maccoby, E., & Jacklin, C. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.

MacDonald, K., & Parke, R. D. (1984). Bridging the gap: Parent-child play interaction and peer interactive competence. *Child Development, 55*(4), 1265-1277.

Martlew, M., Connolly, K., & McLeod, C. (1978). Language use, role and context in a five-year-old. *Journal of Child Language, 5*, 81-99.

Matthews, W. S., Beebe, S., & Bopp, M. (1980). Spatial perspective-taking and pretend play. *Perceptual and Motor Skills, 50*(1), 49-50.

Matthews, W. S., & Matthews, R. J. (1982). Eliminating operational definitions: A paradigm case approach to the study of fantasy play. In D. J. Pepler & K. H. Rubin (Eds.), *The play of children: Current theory and research* (pp. 21-30). Basel, Switzerland: Karger AG.

McCall, R. (1974). Exploratory manipulation and play in the human infant. *Monographs of the Society for Research in Child Development, 39*, (2, Serial No. 155).

McCall, R. (1979). Stages in play development between zero and two years of age. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 35-44). New York: Gardner Press.

McCune, L. (1985). Play-language relationships and symbolic development. In C. C. Brown & A. W. Gottfried (Eds.), *Play interactions: The role of toys and parental involvement in children's development* (pp. 38-45). Skillman, NJ: Johnson & Johnson.

McCune-Nicolich, L., & Bruskin, C. (1982). Combinatorial competency in play and language. In D. J. Pepler & K. H. Rubin (Eds.), *The play of children: Current theory and research* (pp. 30-45). Basel, Switzerland: Karger AG.

McCune-Nicolich, L., & Fenson, L. (1984). Methodological issues in studying early pretend play. In T. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 81-104). Hillsdale, NJ: Erlbaum.

McGhee, P. E. (1984). Play, incongruity, and humor. In T. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 219-236). Hillsdale, NJ: Erlbaum.

Mead, G. H. (1934). *Mind, self and society*. Chicago: University of Chicago Press.

Mead, M. (1975). *Growing up in New Guinea*. New York: Morrow.

Mehrabian, A. (1976). *Public places and private spaces: The psychology of work, play, and living environments*. New York: Basic Books.

Millar, S. (1968). *The psychology of play*. Baltimore, MD: Penguin.

Miller, P., & Garvey, C. (1984). Mother-baby role play: Its origins in social support. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 101-130). New York: Academic Press.

Mitchell, E. D., & Mason, B. (1948). *The theory of play*. New York: A. S. Barnes.

Montessori, M. (1965). *Dr. Montessori's own handbook*. New York: Schocken. (Original work published in 1914)

Montessori, M. (1973). *The Montessori method*. Cambridge, MA: Bentley.

Mueller, E. C., Brenner, J. (1977). The origins of social skills and interaction among play group toddlers. *Child Development, 48*(3), 854-861.

Mueller, E. C., & Lucas, T. (1975). A developmental analysis of peer interaction among toddlers. In M. Lewis & L. Rosenblum (Eds.), *Peer relations* (pp. 223-257). New York: Wiley.

Murphy, L. (1962). *The widening world of childhood*. New York: Basic Books.

Nadelman, L. (1970). Sex identity in London children: Memory, knowledge, and preference tests. *Human Development, 13*, 28-42.

Nadelman, L. (1974). Sex identity in American children. *Developmental Psychology, 10*, 413-417.

Neumann, E. A. (1971). *The elements of play*. New York: MSS Information Corp.

Newcombe, N., Rogoff, G., & Kagan, J. (1977). Developmental changes in recognition memory for pictures of objects and scenes. *Developmental Psychology, 13*, 337-341.

Nicolich, L. M. (1977). Beyond sensorimotor intelligence: Assessment of symbolic maturity through analysis of pretend play. *Merrill-Palmer Quarterly, 23*(2), 89-99.

O'Connell, B., & Bretherton, I. (1984). Toddlers' play, alone and with mother: The role of maternal guidance. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 337-368). New York: Academic Press.

Ogbu, J. U. (1981). Origins of human competence: A cultural-ecological perspective. *Child Development, 52*, 413-429.

Opie, I., & Opie, P. (1959). *The lore and language of school children*. London: Clarendon Press.

Opie, I., & Opie, P. (1969). *Children's games in streets and playgrounds*. London: Clarendon Press.

Ott, J. N. (1973). *Health and light*. New York: Simon & Schuster.

Overton, W., & Jackson, J. (1973). The representation of imagined objects in action sequences: A developmental study. *Child Development, 44*, 309-314.

Parten, M. (1932). Social participation among pre-school children. *Journal of Abnormal and Social Psychology, 27*, 243-269.

Parten, M. (1933). Social play among preschool children. *Journal of Abnormal and Social Psychology, 28*, 136-147.

Pellegrini, A. D. (1980). The relationship between kindergartners' play and achievement in pre-reading, language and writing. *Psychology in the Schools, 17*(4), 530-535.

Pellegrini, A. D. (1981). Speech play and language development in young children. *Journal of Research and Development in Education, 14*(13), 75-80.

Pellegrini, A. D. (1982a). Development of preschoolers' social cognitive play behaviors. *Perceptual and Motor Skills, 55*, 1109-1110.

Pellegrini, A. D. (1982b). Preschoolers' generation of cohesive text in two play contexts. *Discourse Processes, 5*, 101-107.

Pellegrini, A. D. (1984a). The effects of exploration and play on young children's associative fluency: A review and extension of training studies. In T. D. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 237-253). Hillsdale, NJ: Erlbaum.

Pellegrini, A. D. (1984b). Training teachers to assess children's play. *Journal of Education for Teaching, 10*(3), 233-241.

Pepler, D., & Ross, H. S. (1981). The effects of play on convergent and divergent problem-solving. *Child Development, 52*, 1202-1210.

Pepler, D., & Rubin, K. H. (1982). Current issues in the study of children's play. *Human Development, 25*(6), 443-447.

Perry, D. G., Bussey, K., & Redman, J. (1977). Reward-induced decreased play effects: Reattribution of motivation, competing responses or avoiding frustration. *Child Development, 48*, 1369-1374.

Piaget, J. (1932). *The moral judgment of the child*. New York: Free Press.

Piaget, J. (1952). *The origins of intelligence in children*. New York: International Universities Press.

Piaget, J. (1962). *Play, dreams and imitation in childhood*. New York: Norton.

Piaget, J. (1972). Some aspects of operations. In M. W. Piers (Ed.), *Play and development* (pp. 15-27). New York: W. W. Norton.

Pitcher, E. G., & Schultz, L. H. (1983). *Boys and girls at play: The development of sex roles*. South Hadley, MA: Praeger.

Polya, G. (1971). *How to solve it* (2nd ed.). Princeton, NJ: Princeton University Press.

Power, T. G., & Parke, R. D. (1980). Play as a context for early learning: Lab and home analyses. In I. E. Sigel & L. J. Laosa (Eds.), *Families as learning environments for children* (pp. 147-178). New York: Plenum Press.

Power, T. G., & Parke, R. D. (1983). Patterns of mother and father play with their 8-month-old infant: A multiple analysis approach. *Infant Behavior, 6*, 453-459.

Pulaski, M. (1970). Play as a function of toy structure and fantasy predisposition. *Child Development, 41*, 531-537.

Pulaski, M. A. (1973). Toys and imaginative play. In J. L. Singer (Ed.), *The child's world of make-believe: Experimental studies of imaginative play* (pp. 74-103). New York: Academic Press.

Quinn, J. M., & Rubin, K. H. (1984). The play of handicapped children. In T. Yawkey & A. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 63-80). Hillsdale, NJ: Erlbaum.

Rheingold, H. L., & Cook, K. V. (1975). The contents of boys and girls rooms as an index of parents' behavior. *Child Development, 46*, 459-463.

Roberts, A. (1980). *Out to play: The middle years of childhood*. Aberdeen, Scotland: Aberdeen University Press.

Roberts, J. M., & Foreman, M. L. (1971). Riddles: Expressive models of interrogation. *Ethnology, 10*, 509-533.

Roberts, J. M., & Sutton-Smith, B. (1962). Child training and game involvement. *Ethnology, 2*, 166-185.

Rosen, C. E. (1974). The effects of sociodramatic play on problem solving behavior among culturally disadvantaged children. *Child Development, 45*, 920-927.

Rosenberg, B. G., & Sutton-Smith, B. (1960). A revised conception of masculine-feminine differences in play activities. *Journal of Genetic Psychology, 96*, 165-170.

Rubin, K. H. (1980). Fantasy play: Its role in the development of social skills and social cognition. In K. H. Rubin (Ed.), *New directions for child development: Children's play* (No. 9, 69-84). San Francisco: Jossey-Bass.

Rubin, K. H. (1982a). Early play theories revisited: Contributions to contemporary research and theory. In D. J. Pepler & K. H. Rubin (Eds.), *The play of children: Current theory and research* (pp. 4-14). Basel, Switzerland: Karger AG.

Rubin, K. H. (1982b). Nonsocial play in preschoolers: Necessarily evil? *Child Development, 53*, 651-657.

Rubin, K. H. (1985a). Play, peer interaction, and social development. In C. C. Brown & A. W. Gottfried (Eds.), *Play interactions: The role of toys and parental involvement in children's development* (pp. 88-96). Skillman, NJ: Johnson & Johnson.

Rubin, K. H. (1985b). *The play observation scale (POS)* (rev. ed.). Waterloo, Ontario: University of Waterloo.

Rubin, K. N., Fein, G. G., Vandenberg, B. (1983).

Play. In E. M. Hetherington (Ed.) & P. H. Mussen (Series Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (pp. 698-774). New York: Wiley.

Rubin, K. H., & Hayvren, M. (1981). The social and cognitive play of preschool-aged children differing with regard to sociometric status. *Journal of Research and Development in Education, 14*(3), 116-122.

Rubin, K. H., & Maioni, T. L. (1975). Play preference and its relationship to egocentrism, popularity, and classification skills in preschoolers. *Merrill-Palmer Quarterly, 21*(3), 171-179.

Rubin, K. H., Maioni, T. L., & Hornung, M. (1976). Free play behaviors in middle and lower class preschoolers: Parten and Piaget revisited. *Child Development, 47*, 414-419.

Rubin, K. H., Watson, K., & Jambor, T. (1978). Free play behaviors in preschool and kindergarten children. *Child Development, 49*, 534-536.

Sachs, J. (1980). The role of adult-child play in language development. In K. H. Rubin (Ed.), *New directions in child development: Children's play* (No. 9, pp. 33-48). San Francisco: Jossey-Bass.

Saltz, E., & Brodie, J. (1982). Pretend-play Training in childhood: A review and critique. In D. J. Pepler & K. H. Rubin (Eds.), *The play of children: Current theory and research* (pp. 97-113). Basel, Switzerland: Karger AG.

Saltz, E., Dixon, D., & Johnson, H. (1977). Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. *Child Development, 48*, 367-380.

Saltz, E., & Johnson, J. (1974). Training for thematic fantasy play in culturally disadvantaged children: Preliminary results. *Journal of Educational Psychology, 66*, 623-630.

Sanches, M., & Kirschenblatt-Gimblett, B. (1976). Children's traditional speech play and child language. In B. Kirschenblatt-Gimblett (Ed.), *Speech play* (pp. 65-110). Philadelphia: University of Pennsylvania Press.

Sanders, K., & Harper, L. (1976). Free play fantasy behavior in preschool children: Relations among gender, age, season and location. *Child Development, 47*, 1182-1185.

Saracho, O. N. (1983). Assessing cognitive style in young children. *Studies in Educational Evaluation, 8*, 229-236.

Saracho, O. N. (1985). Young children's play behaviors and cognitive styles. *Early Child Development and Care, 22*(1), 1-18.

Saracho, O. N. (1986). Play and young children's learning. In B. Spodek (Ed.), *Today's kindergarten: Exploring the knowledge base, expanding the curriculum* (pp. 91-109). New York: Teachers College Press.

Schiller, F. (1954). *On the aesthetic education of man*. New Haven, CT: Yale University Press. (Original work published 1875)

Schlosberg, H. (1947). The concept of play. *Psychological Review, 54*, 229-231.

Schwartzman, H. (1978). *Transformations: The anthropology of children's play*. New York: Plenum Press.

Schwartzman, H. B. (1979). The sociocultural context of play. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 239-255). New York: Gardner Press.

Schwartzman, H. B. (1984). Imaginative play: Deficit or difference? In T. D. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 49-62). Hillsdale, NJ: Erlbaum.

Selman, R. L. (1981). The child as a friendship philosopher. In S. R. Asher & J. M. Gottman (Eds.), *The development of children's friendships* (pp. 242-272). New York: Cambridge University Press.

Shantz, C. U. (1975). The development of social cognition. In E. M. Hetherington (Ed.), *Review of child development research. Vol. 5* (pp. 257-323). Chicago: University of Chicago Press.

Sheehan, G. A. (1975). *Dr. Sheehan on running*. Mountain View, CA: World.

Shotwell, J., Wolf, D., & Gardner, H. (1979). Exploring early symbolization: Styles of achievement. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 127-156). New York: Gardner Press.

Shultz, T. R. (1979). Play as arousal modulation. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 7-22). New York: Gardner Press.

Sinclair, H. (1970). The transition from sensorimotor to symbolic activity. *Interchange, 1*, 119-126.

Singer, D. G., & Revenson, R. A. (1978). *A Piaget primer: How a child thinks*. New York: New American Library.

Singer, D. G., & Rummo, J. (1973). Ideational creativity and behavioral style in kindergarten aged children. *Developmental Psychology, 8*, 154-161.

Singer, D. G., & Singer, J. L. (1978). *Some correlates of imaginative play in preschoolers*. Paper presented at the annual meeting of the American Psychological Association, Toronto. (ERIC Document Reproduction Service No. ED 174 302)

Singer, D. G., & Singer, J. L. (1984). Parents as mediators of the child's television environment. *Educational Media International, 4*, 7-11.

Singer, D. G., & Singer, J. L. (1985). *Make believe: Games and activities to foster imaginative play in young children*. Glenview, IL: Scott, Foresman.

Singer, J. L. (1973). *The child's world of make-believe: Experimental studies of imaginative play*. New York: Academic Press.

Singer, J. L. (1984). The human personality. San Diego: Harcourt Brace Jovanovich.

Singer, J. L. (1985). Transference and the human condition: A cognitive-affective perspective. *Psychoanalytic Psychology, 2*(3), 189-219.

Singer, J. L., & Singer, D. G. (1976). Imaginative play and pretending in early childhood: Some experimental approaches. In A. Davis (Ed.), *Child personality and psychopathology: Current topics* (Vol. 3, pp. 69-112). New York: Wiley.

Singer, J. L., & Singer, D. G. (1978). *Television viewing and imaginative play in preschoolers: A developmental and parent-intervention study* (Progress

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Report No. 2). New Haven, CT: Yale University. (ERIC Document Reproduction Service No. ED 168 576)

Singer, J. L., & Singer, D. G. (1979). The value of the imagination. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 195-218). New York: Gardner Press.

Singer, J. L., & Singer, D. G. (1983). Psychologists look at television: Cognitive, developmental, personality and social policy implications. *American Psychologist, 38*, 826-834.

Singer, J. L., Singer, D. G., & Rapaczynski, W. (1984). Family patterns and television-viewing as predictors of children's beliefs and aggression. *Journal of Communication, 34*, 73-89.

Smilansky, S. (1968). *The effects of sociodramatic play on disadvantaged preschool children*. New York: Wiley.

Smith, A. B. (1983). Sex differences in activities in early childhood centres. *New Zealand Journal of Psychology, 12*(2), 74-81.

Smith, C., & Lloyd B. (1978). Maternal behavior and perceived sex of infant: Revisited. *Child Development, 49*, 1263-1265.

Smith, P. K. (1977). Social and fantasy play in young children. In B. Tizard & D. Harvey (Eds.), *Biology of play* (pp. 123-145). London: Heinemann.

Smith, P. K. (1983). Differences or deficits? The significance of pretend and sociodramatic play. *Developmental Review, 3*, 6-10.

Smith, P. K., & Daglish, L. (1977). Sex differences in infant and parent behavior. *Child Development, 48*, 1250-1254.

Smith, P. K., & Vollstedt, R. (1985). On defining play: An empirical study of the relationship between play and various play criteria. *Child Development, 56*, 1042-1050.

Sokal, R. R. (1974). Classification: Purposes, principles, progress, prospects. *Science, 185*, 1115-1123.

Spidell, R. A. (1985). *Preschool teachers' interventions in children's play*. Unpublished doctoral dissertation, University of Illinois Urbana-Champaign.

Spivack, M., & Tamer, J. (1981). *Light and color: A designer's guide*. Washington, DC: American Institute of Architects Press.

Spodek, B., Saracho, O. N., & Davis, M. (1987). *Foundations of early childhood education: Teaching three-, four- and five-year-olds*. Englewood Cliffs, NJ: Prentice-Hall.

Sponseller, D. B. (Ed.). (1974). *Play as a learning medium*. Washington, DC: National Association for the Education of Young Children.

Sponseller, D. B. (1982). Play and early education. In B. Spodek (Ed.), *Handbook of research in early childhood education* (pp. 215-241). New York: Free Press.

Sponseller, D. B., & Jaworski, A. P. (1979). *Social and cognitive complexity in young children's play: A longitudinal analysis*. Paper presented at the meeting of the American Educational Research Association, San Francisco. (ERIC Document Reproduction Service No. ED 171 416)

Sponseller, D. B., & Lowry, M. (1974). Designing a play environment for toddlers. In D. B. Sponseller (Ed.), *Play as a learning medium* (pp. 81-106). Washington, DC: National Association for the Education of Young Children.

Steiner, G. (1975). *After Babel: Aspects of language and translation*. New York: Oxford University Press.

Sterling, E., Sterling, T., & McIntyre, D. (1983). New health hazards in sealed buildings: Findings from recent research. *American Institute of Architects Journal, 4*, 64-67.

Stern, D. N. (1974). Mother and infant at play: The dyadic interaction involving facial, vocal, and gaze behaviors. In M. M. Lewis & L. Rosenblum (Eds.), *The effect of the infant on its caregiver* (pp. 187-213). New York: Wiley.

Stern, D. N. (1977). *The first relationship*. Cambridge, MA: Harvard University Press.

Stockinger Forys, S. K., & McCune-Nicolich, L. (1984). Shared pretend: Sociodramatic play at three years of age. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 159-193). New York: Academic Press.

Sutton-Smith, B. (1976). A developmental structural account of riddles. In B. Kirschenblatt-Gimblett (Ed.), *Speech play* (pp. 111-119). Philadelphia: University of Pennsylvania Press.

Sutton-Smith, B. (1979a). Epilogue: Play as performance. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 295-322). New York: Gardner Press.

Sutton-Smith, B. (1979b). Introduction. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 1-6). New York: Gardner Press.

Sutton-Smith, B. (1979c). Overview: Play or flow. In B. Sutton-Smith (Ed.), *Play and learning* (pp. 275-294). New York: Gardner Press.

Sutton-Smith, B. (Ed.). (1979d). *Play and learning*. New York: Gardner Press.

Sutton-Smith, B. (1980). Children's play: Some sources of play theorizing. In K. H. Rubin (Ed.), *New directions for child development: Children's play* (No. 9, pp. 1-16). San Francisco: Jossey-Bass.

Sutton-Smith, B. (1984). Recreation as folly's parody. *The Association for the Anthropological Study of Play Newsletter, 10*, 4-13.

Sutton-Smith, B. (1985). Play research: State of the art. In J. L. Frost & S. Sunderlin (Eds.), *When children play* (pp. 9-16). Olney, MD: Association for Childhood Education International.

Sutton-Smith, B., & Kelly-Byrne, D. (1984). The phenomenon of bipolarity in play theories. In T. D. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 29-48). Hillsdale, NJ: Erlbaum.

Sutton-Smith, B., & Rosenberg, J. (1961). Sixty years of historical change in games of American children. *Journal of American Folklore, 74*, 17-46.

Swigger, K. M., Campbell, J., & Swigger, B. K. (1983, January-February). Preschool children's preferences for different types of CAI programs. *Educational Computer Magazine*, 38-40.

Sylva, K., Bruner, J. S., & Genova, P. (1976). The role of play in the problem solving of children 3-5 years old. In J. S. Bruner, A. Jolly, & K. Sylva (Eds.), *Play: Its role in development and evolution* (pp. 244-257). New York: Basic Books.

Terman, L. (1926). *Genetic studies of genius* (Vol. 1). Palo Alto, CA: Stanford University Press.

Thomas, A., & Chess, S. (1977). *Temperament and development*. New York: Brunner/Mazel.

Tizard, B., Philips, J., & Plewis, I. (1976a). Play in preschool centers: Effects on play of the child's social class and of the educational orientation of the center. *Journal of Child Psychology and Psychiatry, 17*(4), 265-274.

Tizard, B., Philips, J., & Plewis, I. (1976b). Play in preschool centers: Play measures and their relation to age, sex, and IQ. *Journal of Child Psychology and Psychiatry, 17*, 251-264.

Tizard, B., Philips, J., & Plewis, I. (1976c). Staff behavior in preschool centers. *Journal of Child Psychology and Psychiatry, 17*(1), 21-23.

Tomkins, S. (1962-1963). *Affect, imagery, consciousness* (2 vols.). New York: Springer-Verlag.

Turner, V. (Ed.). (1984). *Celebration: Studies in festivity and ritual*. Washington, DC: Smithsonian Press.

Uzgiris, I., & Hunt, J. McV. (1975). *Assessment in infancy*. Urbana: University of Illinois Press.

Vance, T. F., & McCall, L. T. (1934). Children's preferences among play materials as determined by the method of paired comparisons of pictures. *Child Development, 5*, 267-277.

Vandenberg, B. (1980). Play, problem-solving and creativity. In K. H. Rubin (Ed.), *New directions in child development: Children's play* (No. 9, pp. 49-68). San Francisco: Jossey-Bass.

Vandenberg, B. (1981a). Environmental and cognitive factors in social play. *Journal of Experimental Child Psychology, 31*, 169-175.

Vandenberg, B. (1981b). The role of play in the development of insightful tool-using strategies. *Merrill-Palmer Quarterly, 27*, 97-109.

Vandenberg, B. (1982). Play: A concept in need of a definition. In D. J. Pepler & K. H. Rubin (Eds.), *The play of children: Current theory and research* (pp. 15-21). Basel, Switzerland: Karger AG.

Von Glascoe, C. A. (1980). The work of playing redlight. In H. B. Schwartzman (Ed.), *Play and culture* (pp. 228-231). West Point, NY: Leisure Press.

Vygotsky, L. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Vygotsky, L. (1967). Play and the role of mental development in the child. *Soviet Psychology, 5*, 6-18.

Wade, M., Ellis, M., & Bohrer, R. (1973). Biorhythms in the activity of children during free play. *Journal of the Experimental Analysis of Behavior, 20*, 155-162.

Walberg, H. J. (Ed.). (1979). *Educational environments and effects*. Berkeley, CA: McCutchan.

Wallach, M. A., & Kogan, N. (1965). *Modes of thinking in young children: A study of the creativity-intelligence distinction*. New York: Holt, Rinehart & Winston.

Wason, P. C., & Johnson, P. N. (1968). *Thinking and reasoning*. Baltimore, MD: Penguin.

Watson, M. W., & Fischer, K. W. (1977). A developmental sequence of agent use in late infancy. *Child Development, 48*, 828-836.

Webster's New World Dictionary: Second College Edition. (1972). New York: World.

Weininger, O. (1979). *Play and education: The basic tool for early childhood learning*. Springfield, IL: Charles C Thomas.

Wenckstern, S., & Weizmann, F., & Leenaars, A. A. (1984). Temperament and tempo of play in eight-month-old infants. *Child Development, 55*(4), 1195-1199.

Wertsch, J. (1979). From social interaction to higher psychological processes. *Human Development, 22*, 1-22.

Westby, C. E. (1980). Assessment of cognitive and language abilities through play. *Language, Speech, and Hearing Services in School, 11*(3), 154-168.

White, B. L., & Carew-Watts, J. (1973). *Experience and environment: Major influences on the development of the young child* (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall.

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 6*, 297-333.

Wohlwill, J. (1984). Relationships between exploration and play. In T. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 143-170). Hillsdale, NJ: Erlbaum.

Wolf, D., & Grollman, S. H. (1982). Ways of playing: Individual differences in imaginative style. In D. J. Pepler & K. H. Rubin (Eds.), *The play of children: Current theory and research* (pp. 46-64). Basel, Switzerland: Karger AG.

Wolf, D. P., & Pusch, J. (1985). The origins of autonomous texts in play boundaries. In L. Galda & A. Pellegrini (Eds.), *Play, language, and stories: The development of children's literate behavior* (pp. 63-77). Norwood, NJ: Ablex.

Wolf, D. P., Rygh, J., & Altshuler, J. (1984). Agency and experience: Actions and states in play narratives. In I. Bretherton (Ed.), *Symbolic play: The development of social understanding* (pp. 195-218). New York: Academic Press.

Wolfgang, C. H. (1985). Preschool children's preferences for gender-stereotyped play materials. In J. L. Frost & S. Sunderlin (Eds.), *When children play* (pp. 273-279). Olney, MD: Association for Childhood Education International.

Wood, B., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry, 17*, 89-100.

Wurtman, R. J. (1975). The effects of light on the human body. *Scientific American, 233*(1), 68-77.

Youniss, J., & Volpe, J. (1978). A relational analysis of children's friendships. In W. Damon (Ed.), *New directions in child development: Social cognition* (No. 1, pp. 1-22). San Francisco: Jossey-Bass.

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